RESEARCH IN THE SOCIAL SCIENCES

LIBRARY OF PRINCETON
AUG 19 1944
THEOLOGICAL SEMINARY

H61
G29

8.257 2.50-150.

Institute for Research in the Social Sciences
The University of Virginia

RESEARCH IN THE SOCIAL SCIENCES

THE MACMILLAN COMPANY
NEW YORK · BOSTON · CHICAGO · DALLAS
ATLANTA · SAN FRANCISCO

MACMILLAN & CO., LIMITED
LONDON · BOMBAY · CALCUTTA
MELBOURNE

THE MACMILLAN COMPANY
OF CANADA, LIMITED
TORONTO

RESEARCH IN THE SOCIAL SCIENCES

ITS FUNDAMENTAL METHODS AND OBJECTIVES

LIBRARY OF PRINCETON
AUG 19 1944
THEOLOGICAL SEMINARY

By

ROBERT EZRA PARK
ALLYN ABBOTT YOUNG
CLARK WISSLER
ROBERT EMMET CHADDOCK
ROBERT SESSIONS WOODWORTH
ROSCOE POUND
ARTHUR MEIER SCHLESINGER
JOHN DEWEY
CHARLES AUSTIN BEARD

Edited, with an Introduction, by
WILSON GEE

NEW YORK
THE MACMILLAN COMPANY
1929

COPYRIGHT, 1929.
BY THE MACMILLAN COMPANY.

All rights reserved, including the right of reproduction in whole or in part in any form.

Set up and electrotyped. Published May, 1929.

Printed in the United States of America

CONTENTS

PAGE

INTRODUCTION ix

WILSON GEE, PH.D.

Professor of Rural Economics and Rural Sociology; Director of the Institute for Research in the Social Sciences, University of Virginia

CHAPTER

I. SOCIOLOGY 3

ROBERT EZRA PARK, PH.D.

Professor of Sociology, University of Chicago

II. ECONOMICS 53

ALLYN ABBOTT YOUNG, PH.D.

Professor of Economics, Harvard University

III. ANTHROPOLOGY 83

CLARK WISSLER, PH.D.

Curator-in-Chief, Division of Anthropology, American Museum of Natural History; Professor of Anthropology, Institute of Psychology, Yale University

IV. STATISTICS 115

ROBERT EMMET CHADDOCK, PH.D.

Professor of Statistics, Columbia University

V. PSYCHOLOGY 151

ROBERT SESSIONS WOODWORTH, PH.D.

Professor of Psychology, Columbia University

VI. JURISPRUDENCE 181

ROSCOE POUND, PH.D., LL.D.

Professor of Jurisprudence and Dean of the Law School, Harvard University

CHAPTER PAGE

VII. HISTORY 209
ARTHUR MEIER SCHLESINGER, PH.D.
Professor of History, Harvard University

VIII. PHILOSOPHY 241
JOHN DEWEY, PH.D., LL.D.
Professor of Philosophy, Columbia University

IX. POLITICAL SCIENCE 269
CHARLES AUSTIN BEARD, PH.D., LL.D.
Formerly Professor of Politics, Columbia University

INDEX 293

INTRODUCTION

By WILSON GEE

The origin of the series of lectures which constitute this volume was in a recommendation made by the Director to the Executive Council of the Institute for Research in the Social Sciences at the University of Virginia upon the occasion of the first meeting of that body early in the fall of 1926. It was felt that in beginning a program of research the members of the Institute would be greatly benefited by the visit of an outstanding authority in each of the fields of social science represented in the studies to be undertaken. There would result the stimulus from the presentation of his organized thought about the fundamental objectives and methods of research in his particular field, and great value was to be derived from the impact of his experience upon the several problems under investigation, as well as upon the investigators themselves. It was hoped that at the close of the series a volume of unusual merit would result, and that this would be offered under the imprint of the Institute as a contribution of interest to the social science brotherhood in this and other countries. Happily these objectives have been realized in a very full measure.

Not long since, at a conference of Southern social science teachers and research workers, one of the most thoughtful men in the social science field made the statement that "what the progress of physical science

did for the material world during the past half-century, the development of social science will do in the spiritual world in the half-century to come. In the South, there are definite phases of maladjustment to which social science must give attention. Social waste in the South comes from the lack of adjustment to new ideas; our waste in emotions, religious squabbles, political inertia, race antagonism, sectional consciousness, and undeveloped physical resources. We need to forget the things of the past, to recognize our deficiencies and our possibilities for development, and to enter upon a new social experience."

While some of these conditions to which he calls attention may be more intensely represented in the South than in other sections, the situation which he presents is characteristic of civilization as a whole. The flood of light which the extensive studies current in the social sciences can bring to bear upon the mitigation of such problems constitutes one of the most encouraging signs of present-day intellectual progress. The social sciences, at once the most ancient of the tasks which have intrigued the human intellect, and yet the newest in their rebirth, are today in a most healthful state of development. Nothing is more characteristic of this status than the determination to reconstruct the body of knowledge which they represent upon the results of scientific research. A vast amount of resources, human and material, is being employed today in such research. In view of these facts, unusual significance attaches to an effort by eminent authorities to evaluate searchingly the objectives and methods fundamental to research in the social sciences. The

editor believes that this book makes a substantial contribution towards clearing away the non-essential, and emphasizing the sound and fruitful processes in what is now perhaps the most important field of human intellectual endeavor.

Since this series of lectures was projected, three related volumes of great meaning and usefulness have appeared. One of these, edited by the late Professor E. C. Hayes, deals with recent developments in the social sciences; and another, brought out by Professors Ogburn and Goldenweiser, treats of the interrelations of these sciences. The American Council of Learned Societies has sponsored under the direction of Professor Frederic A. Ogg a comprehensive survey of research agencies in the social and humanistic sciences, together with an appraisal of the factors limiting and contributing to their effectiveness. A still earlier volume by Professor Harry Elmer Barnes has brilliantly discussed the history and prospects of the social sciences. While from the nature of such attempts, there must be some overlapping of effort, the fact that research objectives and methods are distinctively the subject of consideration in the following chapters of this volume makes it complementary to the somewhat similar efforts which have preceded it.

No attempt has been made in this volume to develop controversy as to which of the lectures concerns the oldest of the social sciences; the sequence of the chapters is that in which the lectures were delivered. Nor was it one of the purposes of the series to say what organized bodies of knowledge can lay just claim to being classed as social science and which are not so

entitled; the scope of the lectures has been determined by the phases of social science research interest engaging the attention of the members and research staff of the Institute.

As to the method of selection of the lecturers, this was left to the several departments interested. Indebtedness is acknowledged to the following members of the University of Virginia faculty for their choice and invitation of the speaker in the field indicated: Professor Floyd N. House in sociology and anthropology; Professor T. R. Snavely in economics and statistics; Professor George O. Ferguson in psychology; Professor A. M. Dobie in jurisprudence; Professor Dumas Malone in history; Professor A. G. A. Balz in philosophy; and Professor Bruce Williams in political science. In addition, acknowledgment should be made to Mrs. C. E. Moore, formerly executive secretary of the Institute, for her invaluable help in many ways towards making the lectures a success. And last, but not least in importance, is the interest of the social science faculty and the increasing number of graduate students in this field at the University of Virginia whose audience gave fertile ground for the first plantings of the lessons contained in the lectures. The above and many other factors too numerous for mention have combined to make possible this volume on the fundamental objectives and methods of research in the social sciences, which is offered to the profession in the interest of more vitally conceived and truthfully executed research in what has already been characterized as perhaps the most important field of human intellectual endeavor.

RESEARCH IN THE SOCIAL SCIENCES

SOCIOLOGY

By

ROBERT EZRA PARK

SOCIOLOGY

I

The Community

Teggart has stated the difference between history and the other sciences in one fine phrase. "Science," he says, "deals with objects, entities, things, and their relations; history concerns itself with events." [1] Events happen; things do not. On the contrary, they come into existence, change, and disappear in orderly ways, each in accordance with a rule that is characteristic of the class and type to which it belongs, or of which each is an individual example. That is what is meant by describing things as natural phenomena. The nature of a thing is, in fact, just the rule or law by which it moves or changes.[2]

Scientific method, methods of research at any rate, cannot be studied in a vacuum, quite apart from any reference to things. There is, as a matter of fact, no general science of method. Mathematics makes the nearest approach to it, and has been the model of exactness to which the other sciences have invariably striven to attain. The conceptual exactness of mathe-

[1] Teggart, Frederick J. *Theory of History.* New Haven, 1925, p. 71.
[2] Rickert, Heinrich. *Die Grenzen der naturwissenschaftlichen Begriffsbildung. Eine logische Einleitung in die historischen Wissenschaften.* Leipzig, 1902, p. 212.

matics and the wide application that it has found in the other sciences is due to the fact that it has limited itself to the most obvious characteristics of things; namely, their form and sequence. Form and ordered sequence are, in fact, the "things" of mathematics. And this suggests the further observation that what things are for any special science or for common sense, for that matter, is determined largely by the point of view from which they are looked at. Our original datum is always an event. Every science more or less creates its own objects out of events which are a part of the common experience of mankind.[1] The first task of every science is to convert events into things, the particular things it proposes to study.

Statistics has been the method *par excellence* of the social sciences where they have sought to become systematic and attained anything like quantitative exactness.[2] The difficulty has been that statisticians have applied their technique to social phenomena as if the social sciences did not exist, or as if they were mere compendiums of common-sense facts.

Statisticians, for example, have usually treated persons as if they were mere physical units, and societies

[1] Whitehead, Alfred North. *The Concept of Nature.* Cambridge, England, 1920.

[2] "Where there is quantity," says Tarde, "there is science." "Social science," he adds, "will have achieved autonomy as soon as it is able to point to a rhythm (*un mode repetition*) peculiarly its own." Scientific facts, in other words, are facts that are capable of repetition. They can therefore be tested, checked up, counted, reduced to classes and in general treated quantitatively. *See* Gabriel Tarde, *Études de Psychologie Sociale,* Paris, 1898, pp. 41-2. *See, also,* by the same author, *Essais et mélanges sociologiques,* Paris, 1895, pp. 230-308, where he reviews the attempts to apply statistics to the study of attitudes (*Croyances et desirs*).

as if they were mere physical aggregates. But the social sciences—some of them at least—have begun to define conceptually the "things" which are the objects of their investigations. Sociology is not concerned with individuals as such, but with a special type of relation, not fundamentally physical, existing between individuals, and which constitutes them persons. Societies, in the strict sense of the word, are composed of persons, and persons are individuals who have status in some society. Looked at from this point of view, societies themselves become things; things with a natural history and with characteristics which are determined by the interactions and mutual relations of the persons who compose them.

Societies are composed of individuals having status, but sociological writers have not always agreed as to the nature of the relations which bind individuals together in such a way as to constitute them a society. Sociologists are still not agreed as to what, precisely, the relation is which they call "social."

The earlier writers like Comte and Spencer described society as a "social organism." This was one way, at any rate, of expressing their conviction that it was possible to look at societies—composed of units so visibly independent of one another—as something more than mere formal and statistical entities. But Comte and Spencer, looking at the social complex from somewhat different points of view, described it in different terms. The essential relations between men which constitute them a society is best represented, Spencer said, in the *division of labor*. Society is essentially an economic organization. Men live and work

together because they are useful to one another. Competition, which is the fundamental fact of social life, enforces coöperation, and society is the outcome.[1]

Comte, on the other hand, regarded *consensus,* rather than the division of labor, as the fundamental fact about society. Society is primarily a cultural group, having common customs, language, and institutions. The relations of individuals in a society—in the family, for example, which Comte regards as the unit and model of all other forms of society—are closer and more intimate than those which exist between the organs of a plant or of an animal. They are more intimate, and, as Comte probably would have said, more completely organic, because the solidarity of the group is based upon consensus, i.e., understanding. In a society minds interpenetrate, and individuals live and act on the basis of a common experience.[2]

Now, it is an indubitable fact that societies do have this double aspect. They are composed of individuals who act independently of one another, who compete and struggle with one another for mere existence, and treat one another, as far as possible, as utilities. On the other hand, it is quite as true that men and women are bound together by affections and common purposes; they do cherish traditions, ambitions, and ideals that are not all their own, and they maintain, in spite of natural impulses to the contrary, a discipline and a moral order that enables them to transcend what we

[1] Spencer, Herbert. *The Principles of Sociology.* London, 1893, Vol. I, pp. 437, 579-80.

[2] Levy-Bruhl, L. *The Philosophy of August Comte,* authorized translation, with an introduction by Frederick Harrison. New York, 1903, p. 337.

ordinarily call nature and, through their collective action, recreate the world in the image of their collective aspirations and their common will.

There are no words that accurately or exactly describe these different aspects of collective life. The words society and community, as they are used in common parlance, suggest differences, but do not define them. The word community, however, more accurately describes the social organism, as Spencer conceived it. Comte's conception, on the other hand, comes nearer to describing what we ordinarily mean by society.

Community, in the broadest sense of that term, has a spacial and a geographical connotation. Every community has a location, and the individuals who compose it have a place of residence within the territory which the community occupies. Otherwise they are transients and are not reckoned as members. They also have an occupation in the local economy. Towns, cities, hamlets, and, under modern conditions, the whole world, with all its differences of race, of culture, and of individual interests—all these are communities. They are all communities in just so far as, through the exchange of goods and services, they may be regarded as coöperating to carry on a common life.

Society, however, always includes something more than competitive coöperation and its resulting economic interdependence. The existence of a society presupposes a certain amount of solidarity, consensus, and common purpose. The image of society, in the narrower sense of that term, is best reflected in the fam-

ily, the tribe, the nation. Societies are formed for action and in action. They grow up in the efforts of individuals to act collectively. The structures which societies exhibit are on the whole the incidental effects of collective action. Living in society, the individual gets his interests defined in reference to the larger aims of the group of which he is a member. In this sense, and to this extent, society controls the individuals who compose it. Law, custom, convention, "define," as Thomas says, "the situation," and in this and in other ways impose a discipline upon all who seek to participate in the common life.

The term community is employed in a wider connotation. It has been applied to plants and animals, where individuals and species seem to carry on some sort of group economy. In such cases there is, however, no society, in the sense in which Comte would use that term, because in such communities there is no consensus, no conventions, and no moral order. Such order as exists is the order of nature.

It is evident that the two terms do not, in all respects, correspond, and society and community are, strictly speaking, different things. It is probably true, however, that so long as the term is limited in its applications to human beings, every community is, in some sense and to some degree, a society. Man has never quite succeeded in practice and for long, in treating other men as he has the lower animals, as part of the fauna, mere physical objects in the landscape.[1] On the other hand, it is certainly true that not every society is a community.

[1] Dewey, John. *Education and Democracy.* New York, 1916, p. 6.

The community, if not always identical with society, is, at the very least, the habitat in which alone societies grow up. It provides the economic organization and the necessary conditions in which societies are rooted; upon which, as upon a physical base, they can be established.

This is one reason why sociological research may very properly begin with the community. A more practical reason is the fact that the community is a visible object. One can point it out, define its territorial limits, and plot its constituent elements, its population, and its institutions on maps. Its characteristics are more susceptible to statistical treatment than society, in the sense of Comte.

II

Population Pyramids

The community, in its most obvious aspect, i.e., as the statistician is likely to conceive it, is, as has been said, a mere numerical aggregate, a population group defined by the space it occupies. The simplest method of investigating a society conceived so abstractly is to enumerate the individuals of which it is composed. It is primarily the task of human geography to determine the present distribution of the earth's population and to discover the relative densities of those populations in every geographical region and in every local community within these regions. But density of population, because it is related to so much else that is significant in the life of every community, is itself an important sociological datum. Ross, in recognition of

this fact, makes population studies the introduction to his textbook on sociology.[1]

The noted French sociologist, Durkheim, and his school give a prominent place to population studies in their conception of sociology, under the title of social morphology.[2]

Size and numbers are so significant an aspect, not merely of the community, but of any society, that attempts have been made to classify and define cities and minor population aggregates in purely numerical terms.[3]

Enumeration ordinarily involves, however, a division of the population into age classes and sex, in the form of a pyramid; what is called the population pyramid. It appears that the populations of different communities exhibit a variety of deviations which characterize and are typical of the communities whose populations they represent.

Populations, it has been assumed, and recent investigations support the thesis, invariably tend to achieve, in response to the physical and human environment, a stable equilibrium. Malthus thought that population increase was limited only by the food supply, and in the long run perhaps this is true. More recent studies indicate, however, that, for certain populations and for certain classes, the standard of liv-

[1] Ross, Edward A. *Principles of Sociology.* New York, 1920.

[2] *See* Durkheim, Émile. *L'Année Sociologique,* pp. 520-21.

[3] Willcox, Walter F. *Proceedings of the American Sociological Society,* Vol. XX, p. 97. This and other papers on related topics are republished in *The Urban Community,* Ernest W. Burgess, Editor. *See, also,* the bibliography in Park, Robert E., and Burgess, Ernest W., *The City,* pp. 165-166.

ing and other more obscure causes play an important rôle.[1]

Actually, at certain times and in response to certain conditions, populations increase rapidly, either by natural reproduction or by immigration. At other times, and in response to other conditions, they either decline or remain stationary. In any case, new individuals are inevitably introduced into and incorporated in the population group, in order to replace those who have been eliminated by death or by emigration. As a matter of fact, the process by which new elements are incorporated into an old population is a good deal more elaborate than it seems. And this is true whether the new elements are recruited from the native or from the immigrant stocks. The new generation has to be educated and the immigrants have to be assimilated.

Looked at abstractly, the process by which new elements are incorporated and old ones eliminated may be described as a kind of social metabolism, and the rate at which it proceeds can be measured. Now, the rate at which metabolism takes place, like the amount of general movement and mobility, which I shall consider later, is an index and measure of the intensity of the social process.[2] In the great cities to which the tide

[1] Malthus, T. R. *An Essay on the Principle of Population.* 2d ed., London, 1803. Carr-Saunders, A. M. *The Population Problem: A Study in Human Evolution.* Oxford, 1922.

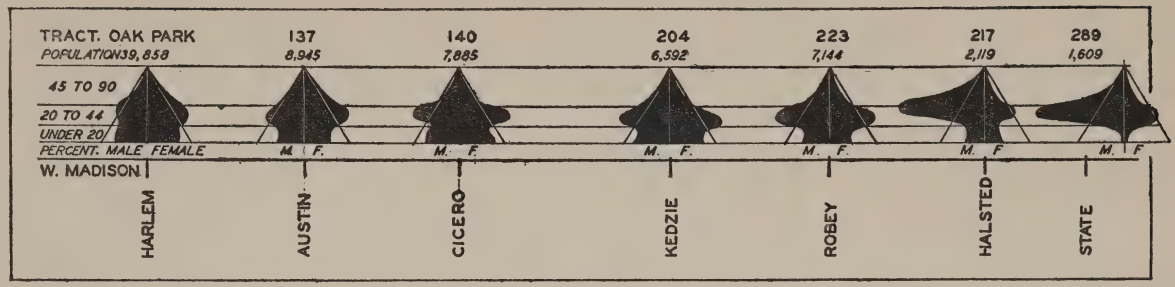
[2] We are very much concerned in the social as in all other sciences about indices. It is only through indices that we can establish units and apply quantitative methods to our descriptions of things. To be sure, it sometimes happens that sociologists, like the psychologists with their intelligence tests, do not know just what they are measuring. Nevertheless, it is possible in this way to give precision to our comparisons of one object with another, even if we do not quite know what the things we are measuring measure.

of immigration, particularly in these later years, so irresistibly tends, great and revolutionary changes, not only in the form but in the content of our social life, are evidently taking place. In the little villages of retired farmers, which have become a feature of rural life in America, particularly in the Middle West, there is, in spite of all the changes that the automobile has introduced, very little going on.

These changes in the social metabolism register themselves not merely in the figures that show the actual increase and overturn in population, but in the population pyramid, as well. A population which has grown by immigration, mainly, is represented by a very different sort of pyramid than one which owes its increase to the sheer excess of births over deaths, and this irrespective of increases in actual numbers. Similarly, the characteristic differences in urban and rural communities are reflected in the form of their respective population pyramids. But the most striking differences in the composition and in the overturn of populations are shown on the pyramids obtained from a study of the age classes and sex groups in different natural areas of great cities.

The fact that these divergencies and contrasts exist is one striking evidence of the rôle which cities play in modern life. They bring together, to be sure, the ends of the earth, all the breeds and types and classes; but having brought them together, the cities sift and sort and redistribute their ill-assorted populations into new groups and classes, according to new and unexpected patterns. The explanation is that competition, the sheer struggle for existence, finally compels each

GRADIENT OF POPULATION, BY AGE AND SEX



The use of the population pyramid as an index of movements and changes of population seems to have been made in the first instance by Italian students of population. (See *Annali di Statistica,* Series 2a, Vol. I, Roma, 1878.) One of the first writers to discuss and develop the theoretical implications of the population pyramid was Levasseur. (See Levasseur, Émile, *La Population Francaise,* Vol. II, Chap. XV, Paris, 1891.) Levasseur points out that there is a definite functional relation between age and sex groups; such that, given a certain distribution of age groups in any population we might expect a correlative distribution of the sexes. The possibilities and limitations of the population pyramid as an index to social conditions in natural areas has been worked out practically and theoretically in a paper now in preparation by Charles Newcomb, instructor in sociology at the Young Men's Christian Association College, Chicago.

individual to seek and find the task that he can best perform, and the ever-widening division of labor multiplies his opportunities to find a vocation for which he is suited. This sifting-sorting process undermines old associations, takes individuals out of their inherited and racial groups, breaks up families; loosens all ties, in fact. And this is part of, or at least an incident and by-product of, the process of social metabolism.

The population pyramid, in so far as it exhibits the deviations of age classes and sex groups, has proved a useful device of social exploration. In exhibiting the anomalies and deviations from the normal distribution in the urban population, it becomes a measure of change, as well as an index to problems of the urban community. For in a society in which a stable equilibrium has been achieved, there are, generally speaking, neither poverty, crime, nor vice—no problems and no progress. For social problems, like diseases, arise in the efforts of the individual and the organism to adjust themselves to a changing environment.[1]

This sorting and segregating of the communal population, putting individuals into new locations and into new occupations—of which the loosening of family ties and the breaking of local associations is an incident—is roughly correlated, though not identical with what we have called social metabolism. When populations are increasing rapidly, either by immigration or

[1] The suggestion that disease may be regarded as an incident of biological adjustment is supported by pathological observations, (*Evolution and Disease,* J. Bland-Sutton, London, 1895, the Contemporary Science Series), and by facts noted by Carr-Saunders (*The Population Problem,* Oxford, 1922, pp. 156-57), showing that diseases, if they have not originated, have at any rate multiplied with the evolution of civilization.

by the excess of births over deaths, the movement and segregation of its component individuals proceeds at a more rapid pace. The amount of change that inevitably takes place in a growing community is, moreover, multiplied and intensified by the invention of new mechanical devices for the production of goods, by new facilities for transportation and communication, and by the incidental extension of the division of labor.[1]

In recent years, for example, electrical transportation has, among other things, put travel underground; steel construction has made skyscrapers possible; passenger elevators have made them practicable. These, together with the telegraph and the telephone, which have immensely extended the radius of effective organization and control, have probably contributed much toward the transforming of conditions of collective and corporate life.

These observations are based largely upon recent studies of the character and the consequences of the rapid growth of cities. They may be regarded, however, as specific illustrations of the operation of a more general principle, long recognized by students of civilization and social life, the principle that movement and migration are not merely an incident but a cause of almost every form of social change. Teggart quotes Waitz, the German anthropologist, to the effect that "Where we see people, of whatsoever degree of civilization, not living in contact and reciprocal action with others, we shall generally find a certain stagnation, a

[1] *See* "The Growth of the City," Chap. II, *The City*. Park, Robert E., and Burgess, E. W. Chicago, 1925.

mental inertness, and a want of activity which render any change of social and political condition next to impossible." The obvious illustration to which Waitz makes reference is China. China has been the classic example of what Teggart calls "the processes which are manifested in fixity, persistence, stagnation, and conventionality." [1] The explanation, in this instance, is not any inherent lack of acumen or of ingenuity in the Chinese mind, but simply the absence of any intrusive factors—commerce, migration, war—capable of interrupting the processes of cultural fixation and crystallization, and so "freeing the individual judgment from the restraint of conventional modes of thought."

From the point of view of sociological research, two observations with reference to this general theory of social change suggest themselves:

1. If it is true that the processes which we can study intensively and at first hand in the city are at all comparable with those larger secular changes which the historian, from his wider horizon, has observed, then it is possible—using the urban community as a unit of investigation—not merely to report but to investigate the processes of civilization.

2. If movement, migration, and commerce are so immediately associated with social changes as has been suggested, then mobility may be taken as an index of social change, and the intensity of the social processes, through which these changes are effected, can be made the subject of quantitative investigation.

[1] Teggart, *Theory of History*, p. 189.

III

Mobility and Land Values

All the movements, migrations, and changes of location that take place within the community, or in any way affect the routine of communal life, are included under the concept of mobility. Sorokin has extended the term to include changes in the occupational status between the first and the second generations. He has sought, in other words, to determine statistically to what extent children do or do not follow the vocations of their parents. He distinguishes, therefore, between horizontal and vertical mobility. Vertical mobility he applies to changes in occupational status; horizontal mobility, on the other hand, is limited to changes of location.[1]

This extension of the concept mobility to include changes in status is quite in accord with the original intention of the term, as it has been used by sociologists, at least. Spacial movement and occupational mobility are sociologically significant mainly and on the whole only so far as they serve as indices for measuring the "contacts," i.e., the shocks, clashes, and the incidental interruptions and breakdowns of customary modes of thought and action which these new personal encounters inevitably produce. Changes in vocational status are, however, merely one of many ways in which the social ritual and routine, which otherwise would be perpetuated by the sheer "weight of authority, superstition, and public opinion," are interrupted and the

[1] Sorokin, Pitirim. *Social Mobility*. New York, 1927.

energies of individuals released for new enterprises and adventures. The importance of these changes in status, from the point of view of research, is that they are capable of statement in quantitative terms.

It is, naturally, in the great cities, with their world-wide commerce and their vast cosmopolitan populations, where the movements of population are greatest and the incidental clashes of personalities and cultures are most intense, that social changes are most rapid. If cities have always been the centers of civilization and intellectual life, it is partly because they are the inevitable meeting places of strangers and the centers of news. The stir, the bustle, and the vivacity of city life are but the reflections of that intenser social life, of which we have sought to make an abstraction and to measure in terms of mobility.

But the movements and migrations of populations are many and various. Not all the changes of location of the urban populations are due to social metabolism and growth. In measuring the growth of cities, too, we have not always taken account of the movements outward, which tend to balance the movement inward. In the great cities, as in the country as a whole, migration statistics show that immigration is largely balanced by emigration. It is estimated that the population in one particular region of Chicago, inhabited mainly by casual laborers, fluctuates in the course of a year between 30,000 and 75,000.[1]

Statistics such as exist in Europe of the transient

[1] Anderson, Nels. *The Hobo: The Sociology of the Homeless Man.* Chicago, 1923.

dwellers in cities are not available for the United States. We are just beginning now to reckon with the seasonal and cyclical movements of our increasingly nomadic populations, with the annual movements back and forth across the ocean of immigrant labor, with the seasonal movements north and south, east and west, our throngs of tourists, casual and seasonal laborers, automobile tramps, and with the enormous increase in our hotel populations.[1]

In addition to these, there are the semi-annual movements, spring and fall, of our apartment house dwellers, and the daily tide which pours into the centers of our great cities every morning and back to the peripheries every evening. These movements are so intimately bound up with every aspect of our commercial life, and are to such a degree symptomatic of the deeper and more obscure changes in our political and cultural life, that it is as if we had our hand upon the pulse of the community.

There is, of course, more than one way in which mobility may be measured and interpreted. As a matter of fact, no wholly satisfactory units or formulæ for describing these more complex population movements in quantitative terms have been as yet devised. It is evident that mobility, measured in terms of change of residence, within the city, has a quite different significance from mobility as exhibited in the daily ebb and flow of the population to and from the business centers. McKenzie has been disposed to distinguish recurrent and cyclical movements of this kind from

[1] Hayner, Norman S. *The Hotel: The Sociology of Hotel Life.* (University of Chicago Ph.D. thesis, 1923.)

migration, which involves a change of residence, by the term "fluidity." [1]

This seems, however, a needless multiplication of words, since it is apparent that mobility, if defined as a "change of location or position," is relative to the term position. What one regards as position determines the unit in which mobility is reckoned. When position is defined in terms of residence these movements like the daily movements to and from the center of the city, which for certain purposes are important, are not taken into the reckoning.

It is an interesting fact, in this connection, that land values seem to be rather definitely correlated with population movements and with mobility generally.[2] It hardly seems necessary to say that land values rise with the movement and increase of population. What is not so obvious is the fact that increase in land values in any section of the community serves to bring about, in turn, a redistribution of population in the community as a whole. Cities, particularly since the introduction of new forms of transportation and of locomotion—the electric tram-car, for example, and the automobile—have grown rapidly by territorial expansion. The appearance of a new suburb on the outskirts of the city does not, however, decrease the pressure on the central business area. Quite the contrary. Suburbs spring up along the lines of local transportation. Any addition to the population within the so-called com-

[1] McKenzie, R. D. "The Scope of Human Ecology," *Proceedings of the American Sociological Society,* Vol. XX, 1925.

[2] MacGill, Helen Gregory. *Land Values: An Ecological Factor in a Community in South Chicago.* (University of Chicago M.A. thesis, 1927.)

muting area means that more people travel every day to the business center, to the city proper, for trade, for recreation, and for all the purposes of communal life. The addition of population at the periphery increases land values at the center, and the pressure of land values at the center radiates over the whole city. One effect is to create, just outside the limits of the central business section, an "area of transition," as Burgess has called it; in other words, a slum.[1]

The encroachment of the slum on the residential areas tends to produce, however, a second area of transition, the so-called "rooming house" area. The rooming house area is almost invariably what is or was residential territory which, because of impending changes, has been abandoned by its original owners to the temporary uses of transients. Out beyond the limits of the rooming houses, with increasing land values, apartment houses replace individual dwellings, the height of the apartment building being determined by the value of the land. On the outer limits of the inner city, bordering upon the suburban area, single dwellings, duplex apartments, and bungalows, the last refuge of the traditional American home, still hold their own.

It thus appears that land values, which are themselves in large measure a product of population aggregates, operate in the long run to give this aggregate, within the limits of the community, an orderly distribution and a characteristic pattern. Under the pressure of land values at the center, cities tend to assume the

[1] *See* Burgess, E. W., "The Growth of the City," in Park and Burgess, *The City*. Chicago, the University of Chicago Press, 1927.

form of a series of concentric circles, each of which circumscribes an area of decreasing mobility and descending land values. If the highest land values are in the retail shopping area, they will usually be located at the point where, in the course of twenty-four hours, the largest number of people meet and pass.

If the assumptions upon which we have been proceeding were wholly valid, one would expect to find land values descending from a high point at the center of the city by regular gradients to the periphery. But the thing is not quite so simple as that, partly because the incidence of geographical location and of transportation intervenes to modify and complicate the pattern which the pressure of land values alone might otherwise impose, and partly because the distribution of industry and commerce is effected by forces relatively independent of those which determine the location of residential and retail business centers.

In the distribution of industry and commerce, as in the distribution of population, the primary tendency is to concentrate everything—population, public institutions, industry, and commerce—around a central market. But as land values increase, population moves out steadily toward the periphery. This centrifugal movement of population, which is exhibited best in London, has been studied in America mainly by the telephone companies, to enable them to predict for some considerable period in advance, the future use and locations of telephone lines and stations.

The ultimate effect of the centrifugal movement is to create an outer circle of satellite cities, more or less independent, but still dominated by the metropolis.

The tendency to concentrate retail trade in the central shopping district, represented by the growth of department stores, eventually is modified by centripetal tendencies due to high rents and cost of transportation. But while shops in which trade is carried on move out, the control of business remains at the center. The chain store, with its distributing units dispersed but its control centrally located, is the type of organization that results.

The centrifugal movement in modern cities is very great, and increases as the city extends its domination through the organization of banking and credit over wider areas. Great cities are constantly throwing off and expelling the industries which they have created.

But trade and industry migrate from the metropolis and from its central business district only as they become standardized, and for that reason subject to control at a distance. Control of industry and of commerce, on the other hand, tends to concentrate in the central banking city and in the central banking center, because these are the centers of communication and of credit. Credit is based finally upon information, and credit and banking institutions must be close to the news.[1]

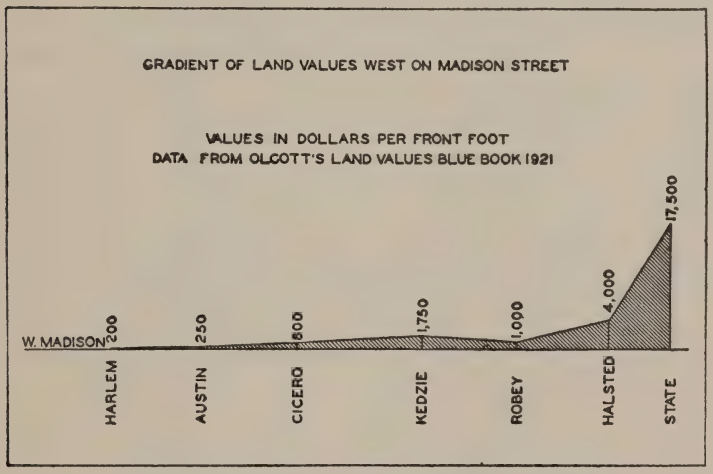
[1] The exercise of this managerial function of coördination and control is at first glance singularly independent of transportation. It does not require the transfer of huge quantities of materials. It deals almost exclusively with information. What is all-important is transportation of intelligence. The mail, the cable, the telegraph, and the telephone bring in its raw material and carry out its finished product. Internally easy contact of man with man is essential. The telephone is prodigally used, of course, but the personal conference remains, after all, the method by which most of the important work is done. Conferences with corporation officers, with bankers, with lawyers and accountants, with partners, with fellow directors, fill the day.

From what has been said, it is apparent that land values contribute something like a third dimension to our human geography. Each of us, every individual member of the community, and every institution, occupies a position with reference to other individuals, and with reference to the institutions of the community, which can be described in distance measured in terms of space or time. But we also occupy a position which is determined by the value of the space we occupy and by the rent we pay. Rent maps have become indispensable to so-called market annalists and to professional advertisers. They are indications of social status, buying power, and general commercial credit. Land value maps thus become, also, in a rough way, an index to cultural life of the community. They serve to delimitate, so to speak, the cultural contour of the community. In any case, land values offer a new device by which we may characterize the ecological organization of the community, the social environment, and the habitat of civilized man.

The making of a land value map which will exhibit graphically the extraordinary variations in land values

The work is facilitated when the time of the men whose time is most valuable is conserved. The district must be conveniently accessible and must be at the heart of the system of communication. It must be arranged so as to give the greatest possible ease of contact among men whose presence is desired in arriving at decisions. The financial district is in effect one big structure; the streets, practically cleared of all except pedestrian traffic, are little more than corridors and air-shafts. The corner of Wall and Broad on a busy morning is much more quiet than many a suburban business corner. The geometrical proposition that the contents of two spheres are to each other as the cubes of their diameters has sent skyscrapers up into the air. This was the economical way to produce accessibility in the center.—Robert Murray Haig, "Toward an Understanding of the Metropolis," *The Quarterly Journal of Economics,* Vol. XL, May, 1926, p. 427.

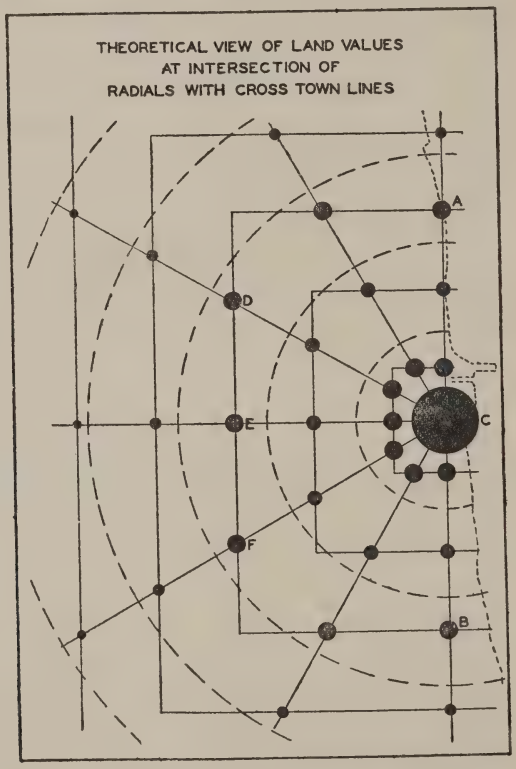
within the limits of the urban community is one of the technical problems of methodology with which students of human ecology have recently begun to experiment. For the purposes of such a map, geographical levels are disregarded, and, in place of these, land values are represented either by contour lines drawn upon a flat surface or by plastic models. By a recently invented device known as the "Wenschow process" it is now



possible to multiply mechanically plastic models which were formerly produced in single examples by handicraft.

From recent studies in Chicago it appears that while land values tend, as might be expected, to fall away gradually and regularly from the center, the symmetry of this pattern is broken at the thoroughfares which radiate from the center of the city. These radial lines, which are occupied by business, mostly retail

shops, rise like ridges above the intervening territory occupied by residences. As they approach the center of the city these ridges mount slowly at first, and then rapidly, toward a central dome of high land values.



In profile, land values on one of these radial streets look something like the chart, "Gradient of Land Values on Madison Avenue." (See page 25.)

The land value map of Chicago may be represented schematically as shown on the accompanying chart.

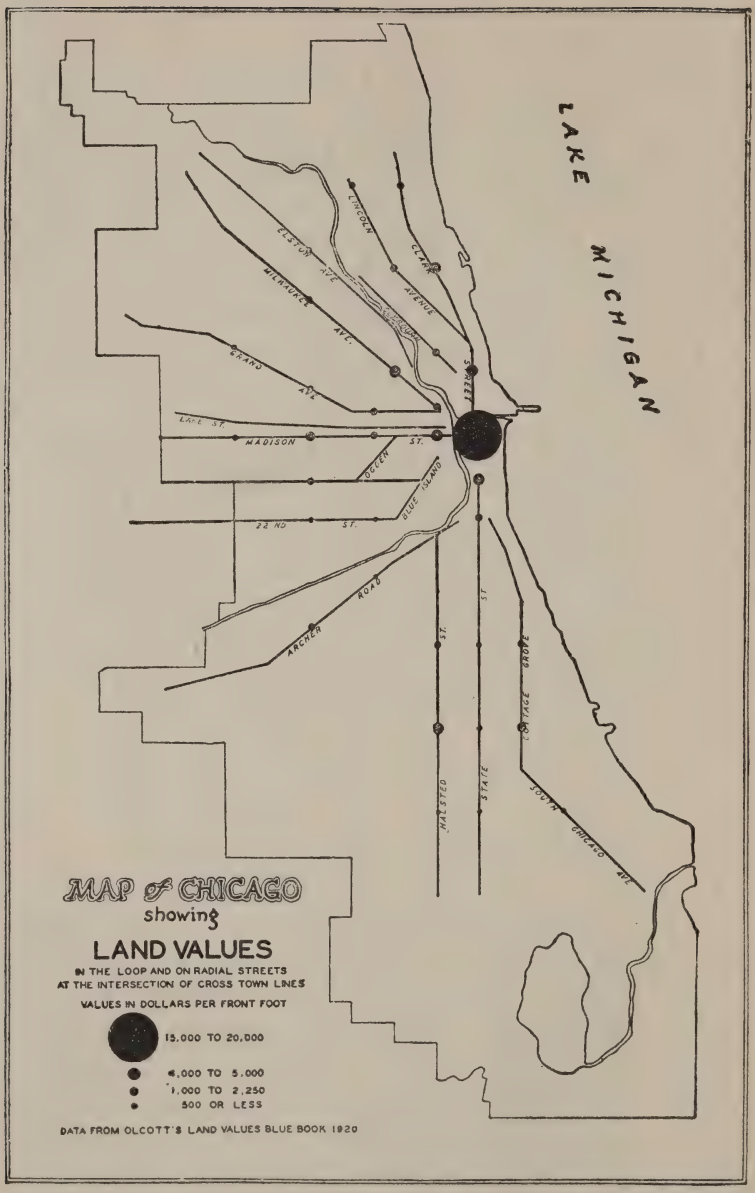
In this, "C" indicates the center of the city, where land values are highest; "A B" represents the line of highest land values along the lake front, and lines "D, E, and F" the streets radiating from the center toward the west, northwest, and southwest. These radial lines are intersected by diagonals running west, north, and south. At the point of intersection new business centers tend to spring up, and in these centers land values rise, and, in general, these subcenters exhibit all the characteristics of the original and central business area at the lake front.

Of all the facts that can be expressed geographically, land values, for the sociologist, are probably the most important. They are important because they offer a relatively accurate index to the forces that are determining the occupational and cultural organization of the community, and because by the aid of land values it is possible to express in numerical and quantitative terms so much that is socially significant.

IV

Frames of Reference

The urban community turns out, upon closer scrutiny, to be a mosaic of minor communities, many of them strikingly different one from another, but all more or less typical. Every city has its central business district; the focal point of the whole urban complex. Every city, every great city, has its more or less exclusive residential areas or suburbs; its areas of light and of heavy industry, satellite cities, and casual labor


LAKE MICHIGAN
LINCOLN AVENUE
CLARK STREET
ELSTON AVE.
MILWAUKEE AVE.
GRAND AVE.
LAKE ST.
MADISON ST.
QUEEN ST.
BLUFF ISLAND
22 ND ST.
ARCHER ROAD
HALSTED ST.
STATE ST.
CENTRAL AVENUE
SOUTH CHICAGO AVE.
MAP of CHICAGO
showing
LAND VALUES
IN THE LOOP AND ON RADIAL STREETS
AT THE INTERSECTION OF CROSS TOWN LINES
VALUES IN DOLLARS PER FRONT FOOT
15,000 TO 20,000
4,000 TO 5,000
1,000 TO 2,250
500 OR LESS
DATA FROM OLCOTT'S LAND VALUES BLUE BOOK 1920

mart, where men are recruited for rough work on distant frontiers, in the mines and in the forests, in the building of railways or in the borings and excavations for the vast structures of our modern cities. Every American city has its slums; its ghettos; its immigrant colonies, regions which maintain more or less alien and exotic culture. Nearly every large city has its bohemias and hobohemias, where life is freer, more adventurous and lonely than it is elsewhere. These are the so-called *natural areas* of the city. They are the products of forces that are constantly at work to effect an orderly distribution of populations and functions within the urban complex. They are "natural" because they are not planned, and because the order that they display is not the result of design, but rather a manifestation of tendencies inherent in the urban situation; tendencies that city plans seek—though not always successfully—to control and correct. In short, the structure of the city, as we find it, is clearly just as much the product of the struggle and efforts of its people to live and work together collectively as are its local customs, traditions, social ritual, laws, public opinion, and the prevailing moral order.

The structure which recent studies of the urban community have disclosed is, moreover, one that is characteristic of cities; it exhibits, in other words, a pattern that can be described conceptually. Urban areas are not mere "events"; they are things, and the regions of one city are comparable with those of another.

Now, the fact of primary importance here is that

social statistics—births and deaths, marriage and divorce, suicide and crime—assume a new significance when they are collected and distributed in such ways as to characterize these natural areas. An area is characterized by (1) the numbers and racial composition of the population that occupies it; (2) by the conditions under which they live; and (3) by the habits, customs, and behavior generally which they exhibit. In short, the place, the people, and the conditions under which they live are here conceived as a complex, the elements of which are more or less completely bound together, albeit in ways which as yet are not clearly defined. It is assumed, in short, partly as a result of selection and segregation, and partly in view of the contagious character of cultural patterns, that people living in natural areas of the same general type and subject to the same social conditions will display, on the whole, the same characteristics.

Investigations have shown that this assumption is so far true as to justify its use as a working hypothesis. In any case, it appears that when natural areas, rather than formal and administrative districts, are made the basis for statistical enquiries, the different regions display unexpected and significant divergences; divergences which were concealed when the statistics were distributed over areas not naturally defined. There are areas in the city of Chicago, as Mowrer's studies in family disorganization have shown, in which there are no divorces at all; and there are areas in which for the years studied the divorce rate was higher than in any state in the Union except that Mecca of divorce

seekers, Nevada. The distribution of statistics on divorce and desertion shows, incidentally, that divorce is a luxury which most of the population cannot afford, and that desertion is the poor man's substitute for divorce.[1]

Recent studies of suicide seem to show that there is inverse correlation between crimes of violence and suicide—suicide being a form of violence directed not against others, but against oneself. Germans and Japanese, who exhibit everywhere a relatively low crime rate, contribute a relatively larger proportion to the annual quota of suicides. Negroes, on the other hand, and Irish, who register high in crimes of violence, are seldom guilty of suicide.[2] The region which Nels Anderson, in his account of the hobo, describes as "Hobohemia," exhibits an extraordinary number of deaths from alcoholism, which, incidentally, is, like suicide, a mode of self-destruction. On the other hand, Bohemia, the region of youth and disenchantment, exhibits a marked excess in suicide.

The natural areas of the city, it appears from what has been said, may be made to serve an important methodological function. They constitute, taken together, what Hobson has described as "a frame of reference," a conceptual order within which statistical facts gain a new and a more general significance. They not only tell us what the facts are in regard to conditions in any given region, but in so far as they characterize an area that is natural and typical, they estab-

[1] Mowrer, Ernest R., Ph.D. *Family Disorganization,* p. 12. Chicago: The University of Chicago Press, 1927.

[2] Shonle, Ruth. *Suicide: A Study of Personal Disorganization.* (University of Chicago Ph.D. thesis, 1926.)

lish a working hypothesis in regard to other areas of the same kind.[1]

It is evident that the areas of an urban community can be characterized, in the manner indicated, to an unlimited extent. Perhaps, not all but most facts that can be stated statistically, once they have been plotted in this conceptual scheme,—this ecological frame of reference,—can be made the basis of general statements which may be eventually reduced to abstract formulæ and scientific generalizations.

The possibility of drawing inferences from what has been observed and described in London, as to what we might expect in New York or Chicago, it should be said, rests on the assumption that the same forces create everywhere essentially the same conditions. In practice it might turn out that this expectation would not be, or would seem not to be, justified by the facts. It could at least be verified, and that is the main point. Should it turn out that the expectations in regard to London, based upon studies in New York and Chicago, were not justified by the facts, this would at least raise the question as to how far the forces that made London what it is were different from those that made Chicago and New York. And this would lead, in turn, to a more thoroughgoing and a more accurate analysis of the actual forces at work in both instances.

Thus the result of every new specific enquiry should reaffirm or redefine, qualify or extend, the hypothesis upon which the original enquiry was based. The results should not merely increase our fund of information,

[1] Hobson, Ernest W. *The Realm of Nature.* Cambridge University Press, 1922.

but enable us to reduce our observations to general formulæ and quantitative statements true for all cases of the same kind. The possibility of general deduction rests, in the present case, upon the validity of the conception of the natural area. The ecological organization of the community becomes a frame of reference only when, like the natural areas of which it is composed, it can itself be regarded as the product of factors that are general and typical. Knowledge becomes systematic and general when one is able to make statements in regard to things, and not merely describe events.[1] It is by means of such a frame of reference as I have here described that it is possible to make the transition from concrete fact to systematic and conceptual knowledge.

V

History

The natural areas into which the urban community —and every other type of community, in fact—resolves itself are, at least in the first instance, the products of a sifting and sorting process which we may call segregation. Every change in the conditions of social life manifests itself first and most obviously in an intensified mobility and in movements which terminate in segregation. This segregation determines the physical patterns which the changing community successively assumes. And this physical form, in turn, effects modification in the cultural organization of the community.

[1] Whitehead, Alfred North. *An Enquiry Concerning the Principles of Natural Knowledge*. Part 4, The Data of Science. Cambridge, England, 1919.

Population movements are usually initiated by economic changes, and a new equilibrium is achieved only when a more efficient economy has been established. Society, however, is something more than an economy, and human nature is always animated by motives that are personal and social as well as economic. While the community may be characterized, in one of its aspects, as a division of labor and a form of competitive coöperation, it is characterized, on the other hand, by consensus and a moral order. Within this moral order individuals assume the character of persons conscious of themselves and of their rôle in the community. One of the most urgent and persistent of human motives is that which impels each one of us to maintain, to defend, and, if possible, to improve his status. Status, however, is a matter of consensus. It is determined in any single case largely by the extent to which the individual man is able to participate in the common purposes of the community, conform to its standards, submit to its discipline or, through the force of personal prestige and influence, impose his own purposes upon his fellows.

In a complex society like our own the individual becomes a member of a number of different societies and social groups, in each of which he has a different status and plays a different rôle. Migration, movement, and changes in economic conditions break up existing forms of social order and undermine status. New means of locomotion, like the automobile, for example, have already profoundly changed the conditions and the character of modern life. The automobile has been charged with the responsibility for new forms of crime

and new types of criminals. The cinema and the newspaper have brought about striking changes in our manners and mores. It is not possible even to guess to what extent the radio and the aeroplane have complicated and ultimately will change our international relations. New contacts compel new adjustments, create new forms of social intercourse, and extend to larger numbers the possibility and the necessity of participation in the common life. It has been the task of history to preserve the records of this common life, to interpret and make intelligible the common cultural tradition. It has been the function of education to transmit it and so preserve the historical continuity of society and social life.[1]

Ethnology and anthropology, which in the origins, at any rate, are historical sciences, have been interested hitherto mainly in the study of the cultural forms and artefacts of primitive societies or the cultural remains of societies that no longer exist. But cultural remains, folklore, cultural forms, and social organization, interesting as they may be in themselves, do not offer an adequate account of any society or social order until we have discovered what they mean. We want to know how the tools were used; what were the sentiments and attitudes with which they were regarded by the peoples who used them. Institutions still present their ancient and external forms after they have ceased to serve the purposes for which they were originally created. Religious forms and ceremonies which at one time were the expression of a living faith and a source of comfort and inspiration to those who prac-

[1] Dewey, John. *Democracy and Education*. New York, 1923.

ticed them, become, with time, merely venerable but unintelligible vestiges. Ritual forms that were once symbolic and expressive degenerate into mere magical formulæ. It is characteristic of the social sciences, including sociology, that they want to know not merely that things exist or that they have existed, but what they meant to the people of whose culture they were a part.

Sociology, as distinguished here from social anthropology, has been interested mainly in social problems, so-called, i.e., poverty, vice, crime, personal and family disorganization, the abuses of political power, and the efforts to reform them. The attempt to understand these problems has led, however, to more and more disinterested investigation of the forms of contemporary life; its institutions and its cultures. Incidentally, sociologists have discovered that every natural area is, or tends to become, in the natural course of events, a cultural area. Every natural area has, or tends to have, *its* own peculiar traditions, customs, conventions, standards of decency and propriety, and, if not a language of its own, at least a *universe of discourse,* in which words and acts have a meaning which is appreciably different for each local community. It is not difficult to recognize this fact in the case of immigrant communities which still preserve more or less intact the folkways of their home countries. It is not so easy to recognize that this is true in those cosmopolitan regions of the city where a miscellaneous and transient population mingles in a relatively unrestrained promiscuity. But in these cases the very freedom and the absence of convention is itself, if not a convention, at least an

open secret. Even in regions where custom no longer reinforces conscience, public opinion and fashion exercise a powerful external control.[1]

In studying a community, or any natural area, from the point of view of its culture, sociology employs the same methods as cultural anthropology or history. It writes the history, as far as that is possible, of the particular community or area that it proposes to investigate.[2]

The local newspapers are sources of information in regard to local traditions, sentiment, and opinion. The names and personal histories of local characters are often worth recording. Not what happened, but what is remembered, is significant. Local institutions, like works of art and literature, are symbolic expressions of the common life. Like art and literature, they have extension and form, but at the same time they have a fourth dimension, namely, meaning. This meaning is not immediately accessible to us. We get the meaning of social institutions as we get the sense of words, by observing the ways in which they are used; by investigating the occasions and incidents of their origin and growth, and by taking account of whatever is unusual or unique in their history. Sociology, it is true, like every natural science, classifies its objects, and in order to define them conceptually and make of them abstractions in regard to which it can draw general conclu-

[1] Tarde, Gabriel. *Les lois de l'imitation; étude sociologique.* Second edition. Chap. VIII, pp. 267-396. Paris, 1895.

[2] In connection with local community studies which have been in progress for some years at the University of Chicago, Miss Vivien M. Palmer is now writing the history of some 80 local communities within the city limits of Chicago.

sions, it is necessary, eventually, to disregard what is unique and unclassifiable about them. But sociology must have its objects before it can classify them.

What is a social object? It is an artefact; something made; or a ceremony, custom, ritual, words; anything which, like a word, has meaning and is not just what it seems. A physical object becomes a social object only when we know its use, its function; its meaning; its different meanings for different persons. Consider such an object as that familiar Christian symbol, the cross, or better, perhaps, the crucifix; what different meanings it has had, and still has, for devout Christians and orthodox Jews. History alone can, it would seem, make these different meanings intelligible to us. Nevertheless, its meanings are an essential part of the thing. Just because it has been a *record of events* rather than a *description of things,* history has given sociology much, if not most, of its subject matter. Something like history—the history of contemporary life—must, it would seem, continue to perform that function.

VI

Life Histories

In the study of contemporary life the sociologist has one point of attack and one device for exploration of his subject which is not to the same extent available to the historian nor the anthropologist.[1] He can inter-

[1] The difficulties of the anthropologist in studying primitive peoples are not merely the ordinary difficulties of language. A special difficulty is due to the fact that the primitive man is not sophisticated

view the individuals who have participated in and are themselves a part of the social order he is seeking to investigate. He can, by means of interviews or by the use of intimate personal documents, build up what is called, technically, life histories.

The relation of the individual to the society in which he lives is probably much more real and intimate than has hitherto been assumed, even by those who have been the first to direct attention to it.[1] It is inevitable that people who live together, even on the most casual terms, should eventually come into possession of a common stock of memories, a tradition; that they should acquire some common standard of decency, some accepted forms of intercourse, etiquette, manners, and social ritual, even when the deeper motives and interests of life remain relatively untouched. It is just as inevitable that continued intercourse should reduce personal habits to conventional forms, and that these should assume, in time, the character of binding social customs.

In such a world the individual is born and lives. The customs of the community become his habits. In the ordinary course of events he accepts the rôle to which society assigns him, and seeks, at least outwardly, to conform to it. He does this for various reasons; among others, because he wants recognition,

and articulate, and he has no words for the subtile meaning of things —things that are to such an extent taken for granted that he does not speak of them except, perhaps, in symbolic and expressive language.— See the paper by Bronislaw Malinowski in *The Meaning of Meaning,* by C. K. Ogden and I. A. Richards.

[1] Cooley, Charles Horton. *Human Nature and the Social Order.* New York, Charles Scribner's Sons, 1902.

respect, status. Independence of action beyond certain prescribed limitations is not expected of him, and as long as he conforms, he is likely to remain naïve; unconcerned about himself, and unconscious of his conduct.

It is by non-conformity, nevertheless, that the individual develops his personality and society ceases to be a mere mass of inert tradition. He may distinguish himself and become ambitious. He may fail; he may cheat; he may do the unpardonable thing and suffer the pangs of remorse. In any case, as a result and to the extent of his collision with the existing social order he is likely to become acutely conscious of himself. The ultimate effect of this is to create that inevitable personal reserve which constitutes his private life. This reserve, which, by the way, little children do not possess, assumes in time, and under certain circumstances, the character of something sacred and terrifying. The individual himself conceives it as something wholly, or almost wholly, inaccessible to other minds. Society is composed of such self-conscious personalities, and these brooding, subjective, inscrutable egos are apparently just as much a product of personal association as are the traditions, customs, and objective forms of social life over against which, in their inaccessible privacies, they set themselves as a contrast effect.

It appears, then, that habit and custom, personality and culture, the person and society, somehow are different aspects of the same thing. Personality has been described as the subjective and individual aspect of culture, and culture as the objective, generic or general

aspect of personality. But the relation between the cultural life of the community and the personal life of the individuals who compose it is more real and dynamic than this statement suggests. The intimate verbal and documentary records upon which such life histories are based serve to lay bare the interaction between this private life, of which the individual is usually so intensely conscious, and the more objective aspects of his personality; namely, the customs and mores of his set, society or social group, of which he is usually unconscious—at least until he finds himself in conflict with them.

This conflict, incidentally, is also likely to have its internal and subjective, as well as its external and objective, aspects. In other words, the individual becomes a problem to himself as well as to society. In the first instance the conflict assumes, in general, the character of a moral struggle. In the other it may take the form of a cultural and, eventually, of a political conflict. The present struggle to enforce the prohibition law is a case in point. Migration, since it brings together peoples with different cultural heritages, inevitably provokes cultural conflicts, first between the native and the alien stocks, and then, particularly since the second generation takes over the native culture more rapidly than the first, between the first and the second generation immigrants.

Life histories such as the immigrant biographies, of which so many have been published in recent years, illuminate this struggle and make intelligible the character of the cultural process involved.

Life histories, as sociologists have conceived of

them, are not, however, autobiographies in the ordinary sense of the word. They have rather the character of confessions, intimate personal documents intended to record not so much external events as to reveal sentiments and attitudes. Of the attitudes which life histories reveal, the most important for the sociologist are those of which the individual is, or was, until his attention was called to them, quite unconscious. Men know themselves as they know and are known by other men about them. They are keen for what is unique and different, but the things in which one man seems like another do not interest them. The individual's opinions, for example, of which he is always so keenly conscious, are usually the least important of his personal attitudes. It is things that people take for granted which reveal at once the person and the society in which he lives. The naïve behavior of the individual is therefore an unfailing index of the society of which he is a member.

It is only recently that sociologists have undertaken to study society—the family, the local community, boys' gangs, political parties, the public, the public opinion—in the private lives and experiences of its individual components. Thomas and Znaniecki were the first to attempt the thing in an impressive way. They collected 15,000 personal letters interchanged between Polish peasants in this country and Poland.[1] They published in full the autobiography of an anonymous Polish adventurer, and upon this and other material of the same sort they were able to make an elab-

[1] Thomas, W. I., and Znaniecki, Florian. *The Polish Peasant in Europe and America,* in five volumes. Boston, 1918.

orate analysis of contemporary Polish peasant culture in Europe, and of the consequences to the Polish immigrant of the breakdown of this culture under the influence of an urban environment in this country.[1]

A little later Maurice T. Price published a volume entitled *Christian Missions and Oriental Civilizations,* based very largely upon the personal records made by

[1] In an introduction to Volume III of *The Polish Peasant,* which contains what the authors describe as "the life record of an immigrant," Thomas and Znaniecki have made an interesting statement in regard to the nature and value of documents of this kind. Among other things, they say:

"We are safe in saying that personal life-records, as complete as possible, constitute the *perfect* type of sociological material, and that if social science has to use other materials at all it is only because of the practical difficulty of obtaining at the moment a sufficient number of such records to cover the totality of sociological problems, and of the enormous amount of work demanded for an adequate analysis of all the personal materials necessary to characterize the life of a social group.

"Indeed it is clear that even for the characterization of single social data—attitudes and values—personal life-records give us the most exact approach. An attitude as manifested in an isolated act is always subject to misinterpretation, but this danger diminishes in the very measure of our ability to connect this act with past acts of the same individual. A social institution can be fully understood only if we do not limit ourselves to the abstract study of its formal organization, but analyze the way in which it appears in the personal experience of various members of the group and follow the influence which it has upon their lives. And the superiority of life-records over every other kind of material for the purposes of sociological analysis appears with particular force when we pass from the characterization of single data to the determination of facts, for there is no safer and more efficient way of finding among the innumerable antecedents of a social happening the real causes of this happening than to analyze the past of the individuals through whose agency this happening occurred. The development of sociological investigation during the past fifteen or twenty years, particularly the growing emphasis which, under the pressure of practical needs, is being put upon special and actual empirical problems as opposed to the general speculations of the preceding period, leads to the growing realization that we must collect more complete sociological documents than we possess."

missionaries of their own work in the Orient.[1] Still later, Charles S. Johnson contributed to the Survey of Race Relations in Chicago, made under the direction of a state commission, a study of the attitudes of the American public toward the Negro.[2] This, like other studies mentioned, was based largely upon personal records and the interpretation of documents.

If it is true that we must explore the personal experiences of individuals to find the origins and meaning of our cultural forms, it is equally true that the actions of the individual can be understood and explained only by considering them in the social and cultural context in which they occurred. Sociology has always been disposed to emphasize "environment" as a determining factor in human behavior, and many, if not most, of the reforms of recent years, improvement of homes, the laying out of playgrounds and the general improvement of the physical conditions of our cities have had the support of some sort of environmental theory of social causation. Attempts have been made, for example, to justify the erection of playgrounds on the theory that they reduced juvenile delinquency. If delinquency meanwhile increased, an explanation was likely to be found in the increasing popularity of the motion picture theater, and of the dance hall. Recently more detailed and specific studies have given us a clearer conception of the social environment and its relation to crime and vice.

[1] Price, Maurice T. *Christian Missions and Oriental Civilizations,* A Study in Culture Contacts. Shanghai, China, 1924.

[2] *The Negro in Chicago: A Study of Race Relations and a Race Riot.* By the Chicago Commission on Race Relations. Chicago, 1922.

At the meeting of the American Sociological Society in December, 1926, Clifford R. Shaw, of The Institute for Juvenile Research, made a report upon some studies of juvenile delinquency in which he had made use of what we have called life history material.[1] These detailed investigations, based upon interviews with delinquent boys, with members of the boys' families, and with neighbors, revealed, almost for the first time, the sort of world in which delinquent boys actually live.

Thrasher, in his study of the gang, which is likewise based upon personal interviews and intimate documents, had already given us a lively picture of what he called "gangland."[2] But the materials upon which Shaw's study was based were elicited in what amounted to an informal trial, in which the members of the family were the accusers and the delinquent boy the accused, the investigator acting in the rôle of the court. As a matter of fact, the procedure in getting the materials for case histories of this sort is not unlike the more formal proceeding of the French criminal courts, where the accuser and the accused are brought face to face and invited to substantiate, by question and answer, each his own side of the case. Under circumstances such as these, in which all the actors are actively engaged, not only the language but the accents and gestures of the participants are significant, and, as far as possible, made a part of the record.

The difference in the procedure begins after the in-

[1] *Proceedings of The American Sociological Society,* Vol. XXI, pp. 149-57.

[2] Thrasher, Frederic M. *The Gang.* Chicago, 1927.

formal court has adjourned and the record is completed. Since inquiry thus instituted is not a judicial proceeding and the "family interview" is not evidence but merely a record of behavior, it is not made the basis of a legal proceeding, but, together with the mental tests and psychiatric record, furnishes a basis of a social diagnosis. Since such a diagnosis may involve, and frequently does, not merely the delinquent child but the delinquent's family, the neighborhood and the play group, the subsequent procedure is often rather formidable. Frequently, however, the delinquency is due, and this is particularly true in the case of immigrants, to a failure on the part of parents to understand the kind of world in which the child is living. Sometimes the difficulty is not in the family but in the neighborhood. It is not easy for a family to maintain discipline over its members in a "mixed" community. When there is no support in the neighborhood for the standards and mores that the family seeks to maintain, family discipline almost invariably breaks down.

A report made at the meeting of the American Sociological Society in 1926 by Ernest W. Burgess [1] showed, among other things, that the delinquency rate reached its highest point, 443 per 1000, in the slum, and declined to 54 in the rooming house area; and from that point it continued to decline in a regular curve until, at the sixth and seventh mile from the "loop," where home ownership is high and the com-

[1] Burgess, Ernest W., "The Determination of Gradients in the Growth of the City," *Proceedings of The American Sociological Society,* Vol. XXI, pp. 178-84.

munity relatively homogeneous and stable, it reached zero. These figures, which show how variously different cultural areas of the city are characterized by the incidence of juvenile delinquency, become all the more intelligible and all the more significant when they are considered in the light of Shaw's more intensive and intimate studies of the individual cases. In this way the life history and the statistical studies supplement one another.

Life histories, where it is possible to secure them, are almost always interesting, because they nearly always illuminate some aspect of social and moral life which we may have known hitherto only indirectly, through the medium of statistics or formal statements. In the one case we are like a man in the dark looking at the outside of the house and trying to guess what is going on within. In the other, we are like a man who opens the door and walks in, and has visible before him what previously he had merely guessed at. The difficulty is that personal histories are voluminous, and in the interest of economy we must eventually reduce them to more or less formal types. However, no wholly satisfactory scheme of classification of personality types has yet been suggested, though much has been written and many experiments made. A sociological scheme for the classification of personality types must be based upon life histories, but with the exception of the three types mentioned by Thomas and Znaniecki—the philistine, the bohemian, and the creative man (the genius)—no such classification exists.

If, now, one asks, What facts in the personal history of an individual are for most or all purposes genu-

inely significant, it seems to me that we are bound to say that the most important fact about any person is this: What is it that habitually engages his attention? What are the subjects of his dreams and reveries? And what is the rôle in which he conceives himself? What his acts have been and what his habits are, we can know. In addition to these facts of his history, it is important to know, however, his incompleted acts: what he hopes; what he dreams; what his vagrant impulses, "temptations," are.

In the study of the family we are interested in knowing whether the traditions of the parents carry over to the children, and whether the plans and hopes of one generation are transmitted to and fulfilled by the second. If this does not happen, we may be said already to have family disorganization, for the family is a bearer of tradition, and in carrying on this tradition the family is engaged in a collective act. It is by such collective acts and by such handing on of the incompleted act of one generation in one individual to another that culture not only comes into existence, but is kept alive.

But just as the most important fact about the individual person is his hopes and dreams, so the most important fact about a nation or a people is its literature. Do our writers and social prophets look forward or backward? Are they critical and querulous merely? What dreams are they inspiring in us? What future actions are they inspiring? The most significant thing about the Negro since his emancipation, to cite a conspicuous instance, is, it seems to me, the rise of a Negro literature. So, likewise, the most significant recent inci-

dent in the life of the Jew is Zionism; in the life of Asia, Chinese nationalism. This phenomenon can also be studied systematically, but that is another and a different story, and it involves another and a different technique.

ECONOMICS

By

ALLYN ABBOTT YOUNG

ECONOMICS

I

The social sciences, like the natural sciences, proceed upon the one great premise that the intricate flux of events can in some way be explained. What appear to be arbitrary or capricious happenings can be fitted into a scheme which has no room for anything but dependable uniformity and regularity. Such is the first article of the scientist's creed. The second article of that creed is that the one way to come to a knowledge of these hidden uniformities is by means of those patient and methodical inquiries which we call research.

The social sciences, however, have to be distinguished from the physical sciences, not only because the phenomena with which they deal are more complex, because their data are less exact, and because the experimental method which the more rigorous physical sciences employ is generally not available to them, but also because they encounter problems of *orientation* which are peculiar to them and from which the physical sciences are free. The physical scientist sets himself, as an impartial observer, outside of nature, inquires into nature's processes, and tries to reduce them to simple general relations. He does not hope to be able to change nature, or even in any literal sense to gain "increased power over nature." But he knows that as

we come to understand nature's processes better we are able to make better use of them—which means merely that in our ways of doing things we take account of our new knowledge. The data of the physical sciences are physical phenomena, but the problems which these sciences seek to solve are born of human interests, and so far as the knowledge which they yield has instrumental value, it serves human ends and leads to modifications of human arrangements.

The social scientist cannot, in any comparable way, put himself, as an impartial observer, outside of society, so as to get a view of social processes as a connected whole. His interests, his values, his ends, lie *within* that connected whole. Every occurrence in the contemporary life of a society enters into two separate sets of relations. In the first place, every such occurrence is a phenomenon, a scientific datum, which has to be fitted into the ordered scheme of social processes. In the second place, every such occurrence has its own immediate and concrete significance, and has to be accorded its due weight in any system of social values. We seek to understand the impersonal processes of nature and to take account of them, but we neither approve nor disapprove of them. We also seek to understand and to take account of social processes, but we reserve the right to approve or disapprove of them. We do not hope to change nature's uniformities; but the processes of organized society, we believe, are in some degree plastic. So far as the knowledge which the social sciences yield has instrumental value, it serves social ends and leads to modifications of social arrangements. In any complete view the realm of the

phenomena of organized society and the realm of ends are coterminous. The great first premise of the scientific method compels us to view these phenomena as rigidly determined and predictable, while the interests that prompt our scientific inquiries imply that they are in some measure amenable to control.

Upon the general philosophical aspects of the predicament in which the social scientist finds himself I do not propose to dwell. My present concern is with the practical devices by means of which men interested in social problems have been able to get something of value out of the scientific study of social processes. These devices all involve some particular orientation and some particular ordered scheme of abstraction. The traditional type of economic theory, for example, rests upon the common interest in increasing the production of wealth and securing its juster distribution. The data which it submits to scientific scrutiny (the pertinent aspects of the physical environment, along with other commonplace facts, being taken as given) are the reciprocal relations between certain types of human conduct that appear to be fairly stable and dependable in the mass, and the variations of such economic magnitudes as product, prices, wages, costs, profits, and interest rates. The economic processes of society are thus viewed as constituting an intricate but reliable mechanism, operating in an orderly and predictable way.

But this economic mechanism is something more than an object for scientific analysis and contemplation. It may be controlled, directed, or interfered with. It is a social instrument, to be *used* as our communal inter-

ests may dictate. Above the economic man stands the political man, free to limit and define the field of the economic man's activity, to impose conditions upon him, to prevent him from doing certain things, to encourage him to do others. It is incorrect, therefore, to say that the traditional political economy implies a wholly mechanistic view of human society. All that it implies is a particular orientation, with one particular set of social processes viewed as a mechanism by free agents who want to understand the workings of the mechanism because they want to know how best to control it and use it. They want to know how far to control it and how far to leave it alone, and it is desirable that they should be able to predict the more remote as well as the immediate effects of particular measures of control. Agents, mechanism, instruments, and ends are thus all in the picture. Doubtless they are seen in a one-sided and partial way, and yet this view of things has proved itself to be practically serviceable, and the traditional political economy which embodied it was one of the great intellectual achievements of the nineteenth century.

Every social science has to be defined in terms of its problems, and accordingly includes agents, instruments, and ends, as well as a mechanism, among its postulates. But every social science has its own particular orientation. Thus for political science the behavior of the political man may well be an object of scientific scrutiny, just as educational science may focus its attention upon the learner and criminology upon the lawbreaker. The same human activities which one science regards as sufficiently uniform and dependable

in the mass to make scientific analysis of them profitable appear in other social sciences as free or plastic. To the economist the citizen, the voter, may be a free agent; to the political scientist his conduct may be in some measure determinate; to the student of education he may be a bit of malleable human material.

There is no necessary conflict between these different views, for each is a partial view. Held to consistently, they would separate the different social sciences rather more narrowly and rigidly than is practically desirable. A worker in any part of the field of the social sciences needs to be aware of the importance for his own problems of more orientations than one. But I venture to hold that no complete *scientific* synthesis of all of the different social sciences is possible, if only for the reason that, as I have said, the inquirer, with his interests, must stand somewhere *within* society and its processes.

There is another problem of orientation, which cuts across all of the social sciences, for there are two different possible views of the general structure of society. Both views can be traced back as far as the Greeks, but sometimes one view and sometimes the other has been dominant. These two views, or ways of conceiving the structure of society, are the contractual and the institutional. In the contractual view social arrangements are deliberate contrivances resting upon voluntary agreements, instruments which men use in attaining their purposes. In the institutional view these same arrangements appear as social habits, the products of history, not really shaped by the rational prevision of men, but dominant factors, themselves, in determining

what men's purposes and values shall be, and establishing the patterns which human behavior follows. In the one view, the institutions which make up the structure of society are human expedients; in the other view, man himself, except for his endowment of native powers and propensities, is the product of life in society. These views are variously distinguished as individualistic and social, rational and genetic, atomistic and universalistic, mechanistic and organic. Each pair of names conveys a particular emphasis, or invokes a particular analogy, but each expresses the same fundamental contrast or opposition.

I see no satisfactory ground for any other position than that both of these opposed views take account of necessary aspects of the structure and the processes of organized society, and that neither view, taken by itself, is adequate. Yet the opposition between these two views has at one time and another divided social scientists into two warring camps. We have had, and still have, too much of what Mill, in his essay on Coleridge, called "the noisy conflict of half-truths, angrily denying one another." Mill added these wise words: "All students of man and society who possess that first requisite for so difficult a study, a due sense of its difficulties, are aware that the besetting danger is not so much of embracing falsehood for truth, as of mistaking part of the truth for the whole." These are words for all inquirers in the field of the social sciences to remember. Our work is retarded and our intellectual energies are dissipated in useless quarrels because of our intolerance of methods and points of view other than our own. There are only two things of which we

have a right to be intolerant: first, positive errors of fact or of inference; second, intolerance itself.

Since the two views of which I have spoken are really supplementary, one to the other, it follows that in the social sciences we must make room for two different general classes or types of investigations. In the first type we concern ourselves with certain aspects of the nature and the operations of a complicated social mechanism. We search for uniform and dependable relations that will help to explain the degree of order that is apparent in our social environment. In the second type of inquiries we seek to get an understanding, not of those general and dependable relations among things which we call "laws," but of specific events, particular institutions, and unique situations. We look for explanations of *differences,* of the *new* forms which our institutions and our activities assume from time to time.

What I am trying to emphasize is the distinction between the field of "science," in a narrow and strict sense, and the field of "history,"—a distinction which many philosophers have recognized, but which has been curiously neglected in current American discussions of the problems and methods of the social sciences. Because both the natural and the social sciences, as commonly defined, extend over both fields, I prefer to follow Cournot in distinguishing, not between science and history, but between the abstract sciences and the historical sciences, between the sciences which have to do with those dependable abstract general relations which we call laws, and the sciences which deal with given situations or particular events in terms of their specific

relations to situations and events which have preceded them.

Now it is a capital error to hold (with Thorstein Veblen and some of his followers) that the explanation of things in terms of their historical antecedents is in some special sense a scientific mode of explanation; that, as Veblen puts it, modern sciences are characteristically "evolutionary sciences," and concern themselves primarily with "unfolding sequences" and "cumulative causation." The truth is, of course, that the goal towards which the natural sciences are always pressing—even though it may be an unattainable goal —is the explanation of this world of changing and evolving forms and types of organization in terms of some simple and stable mechanism. Mathematical physics has not abdicated to descriptive genetics its place as the perfect type of science, and in a manner the ultimate type.

It is far from my purpose to belittle the importance of historical and genetic inquiries for the social sciences. I am merely trying to correct what seem to me to be prevalent misconceptions respecting the part they play in increasing our knowledge. I shall not even attempt to support the thesis that the unique and special character of historical events makes "historical laws" impossible—for that thesis seems to depend partly on the way in which we define "history," and partly on what we mean by "law." There can be no doubt, however, that the sort of knowledge which we get from those historical inquiries which assume the institutional view of the structure of society is not the sort of knowledge which we get from those inquiries

into abstract general relations which assume a mechanistic or contractual view of the structure of society.

The mechanistic or contractual view of society is of necessity an instrumental view. The knowledge we get from researches into the nature of the general form of the economic relations that obtain in such a society is practical working knowledge, and can be formulated in working rules. It tells us what the general character of effects of a particular measure of control will be, what will happen if we pull a particular lever. Historical and genetic inquiries do not lead to working rules. They extend the range of our experience, they give us a better understanding of ourselves and of our possibilities and our limitations, they lead to new appraisals of our social arrangements, but they tell us little or nothing about means. At their best they add to our wisdom, to our judgment respecting what things are worth accomplishing, but they add little to the technical equipment required for successful accomplishment.

Researches into the "unfolding sequence" of institutional forms encounter the difficulty that the results they give are never scientifically verifiable. Wholly different interpretations of the course of history may have equally good credentials. A countless number of threads of continuity ramify backward into the past, and are woven together into what Maitland called the seamless web of history. Selection among them has to be made on the ground of present interests, and there is always the danger that it will be made on the ground of present predilections or present prejudices. Every account of the origins and the development of any of

our contemporary institutions involves a revaluation of the past as well as of the present. (Consider, for example, the contrast between Alfred Marshall's summary account of what he calls "the growth of free industry and enterprise," and any one of the various socialistic accounts of the origins of what the socialists prefer to call "modern capitalism.")

Of course, the worker in this field cannot give free rein to his imagination, for he is controlled and limited by the facts. But his task is not merely to ascertain the facts: he has to select them, evaluate them, and relate them so that they will tell their story. His task is not merely one of research, but of esthetic construction as well. What he sees and reproduces will depend not only upon what there is to be seen, but upon what he looks for, and that will depend upon himself, his training, and his interests.

I do not mean to suggest that within the limits set by the facts the historical or genetic interpretation of our existing economic order depends solely upon the personal equation of the investigator. If he is an honest workman he will be controlled by the circumstance that all of the knowledge he gets, by whatever methods of inquiry, must fit together so as to be a consistent whole. In practice the lines between different views of the structure of economic society and different methods of inquiry cannot be drawn so sharply as I may have seemed to suggest. The economic theorist does not "deduce" his results from a few simple premises. Even when he controls his findings by using statistics, he works in the midst of a context of experience, and the system of general relations which constitutes his theory

is empty of meaning unless it is consistent with that body of experience, and explains and organizes some part of it. Similarly, whatever new views of the structure of economic society we get by looking backward to its development must supplement and be consistent with that abstract and general view of economic relations which we call economic theory. Every economic theorist ought to be something of an historian, and every student of the development of economic institutions ought to be something of a theorist.

It may be that I have dwelt overlong on these preliminaries, but this has seemed to me to be an appropriate occasion for entering a protest against the fruitless quarrels of the methodological sects, against their intolerance, and against their pretensions to exclusive possession of the only right points of view and the only effective methods of research. We ought to welcome sound work in the field of economics—work that really contributes to our understanding of economic problems,—whatever its orientation and whatever method or technique it employs. The prerequisite to this degree of tolerance is the recognition of the fact that no one orientation can possibly lay bare the whole field of the economist's interests.

II

I hesitate to try to say towards what particular economic problems research could most profitably be directed just now. The difficulty is partly in the necessity of fitting research problems to the interests and equipment of the individual investigator and to the resources available to him, and partly in the rich

diversity of important problems. Much depends, moreover, upon whether group research or individual research is contemplated.

Group research is an important and promising new development. It involves a common attack upon a particular problem or set of problems, by an organized body of investigators who apportion their work so as to get some of the advantages of the division of labor, and who may be able to turn over routine parts of their tasks to a corps of clerical assistants. This sort of organized research undoubtedly has advantages when what is wanted is a definite answer to a definite question, and when the question is one of fact. The task then is one of assembling materials and of putting them through appropriate technical processes so as to get a finished product. The form, though not the precise content, of the product is known in advance. The product must always be got by assembling facts in a particular way, or by relating them in a particular way. Doubtless research of this kind, directed toward a definite objective, will often yield important by-products; and doubtless, also, individual investigators who are engaged in this kind of research will often hit upon new methods of dealing with their materials, or will find that new explanations and possible new inquiries come into their minds. But the specific goal of such research, as I have said, is a definite answer to a definite question of fact.

We have made hardly more than a beginning in organized group research in economics, and I look for a considerable increase in the number and importance of such undertakings. There are many important tasks

which are beyond the powers and the resources of the individual investigator, and which call for the coöperation of a number of investigators, with different capacities and different training. The advantages of this kind of organized coöperation are so obvious that I need not enlarge upon them. Its limitations are, or ought to be, equally obvious. These limitations are bound up with the fact that effective research is more than mere routine, more than a manufacturing process. The multiplication of research activities and increase of endowments for research will not of themselves afford any assurance that there will be a corresponding increase of our understanding of the economic life of society. The assembling and systematic ordering of historical documents and statistical data is not enough. Willingness and industry are not enough. A perfected scientific technique is not enough. The really important thing is that research be directed towards the answering of significant questions, and it is hard to frame significant questions except in the light of definite hypotheses. Formulating questions and hypotheses is the first and most important task of the investigator.

Just because we can make a formal logical distinction between deduction and induction, we are prone to exaggerate the difference between deductive and inductive methods of inquiry. In the practical work of getting knowledge, we pass from a generalization to the facts and from the facts back to new generalizations in a way that blends deduction and induction. We begin, let us say, with a hypothesis—a tentative generalization. We then look into the facts, knowing that if the

hypothesis is sound, the facts we find within a certain range will not be inconsistent with it, and we determine our field of inquiry accordingly. This much is deduction. If the facts prove to be consistent with the hypothesis, our tentative deduction is transformed into an induction (or, as we say when we are testing some existing theorem, into a "verification"). If the facts are inconsistent with the hypothesis we cast about for a new hypothesis, for a generalization that brings the facts into some sort of orderly relation. In any really creative research, however modest in scale, there is this process of continuous give and take between the search for general relations and the scrutiny of particular details, between thinking and concrete observation.

But the process is generally not nearly so orderly and schematic as I have made it appear. Whatever the degree of perfection to which we have brought our methods of investigation, however conscientiously we try to conduct our inquiries so that our findings shall be impartial and objective, we have to proceed in the directions in which our interests and our questioning minds lead us, and we have to rely upon the subtle and obscure processes by which new hypotheses, new perceptions of possible relations among things, build themselves up in our minds as we bring new materials under survey.

Moreover, the materials which we consciously scrutinize, and which lie, perhaps, on the table before us, are only a part of the materials on which we levy. We work, as I have said, in a context of experience. Some of it may be formulated in general principles or in a

consistent system of theory, some of it be organized in the form of orderly views of historical sequences. But a considerable part of it must be made up of that unsystematized knowledge of the relations of things which we get out of the immediate experience of life, as well as out of what we hear and what we read. The new knowledge which our researches yield has to be fitted into, not merely added onto, a comprehensive view of economic life, into which all our knowledge enters. This remains true regardless of whether, as in what we call deduction, we scrutinize such experience as is already at hand, and try to discern more clearly the systematic relations which run through it, or whether, as in what we call induction, we reach out for new experience and use it in testing and extending our knowledge.

In any case, the prerequisites to really successful research are significant questions and fruitful hypotheses. Successful research, of course, calls for industry and a command of the appropriate technical methods. But if it is to be anything more than mere fact-finding, it calls also for imagination, for the ability to see a problem and to devise hypotheses that are worth testing. Industry fortunately is not an uncommon virtue. Technique may be acquired. But imagination, and especially the kind of imagination that keeps its moorings, is rare. That is one reason why we ought to put our emphasis upon the individual investigator rather than upon a fixed program of research; why we should try to make it possible for the man with ideas to do the particular things he wants to do rather than the things we want to see done.

On the other hand, because men with really fruitful ideas are rare, and because there are a few men who combine a clear vision of some of the major economic problems with the ability to direct research effectively, it may sometimes be wise economy to make it possible for these exceptional men to control and direct the work of other investigators. In this way apprentice investigators may learn their trade while devoting themselves to more important tasks than they might have hit upon if left to find their problems for themselves. There are wastes in such arrangements, however. The energies which men of first-rate capacity give to directing the work of others might sometimes be employed more profitably in their own work. The largest contributions to economics have been, and, as I believe, always will be products of individual scholarship and research. There is no substitute for first-hand and intimate knowledge of one's own materials. Everyone who has undertaken a piece of original research knows how, even in the course of the routine handling of materials, the active mind notes at one point an apparent discrepancy, which calls for some recasting of hypotheses, while at another point it finds a suggestion of some hitherto unsuspected relation. The technical processes of research play a rôle auxiliary to that of the constructive and coördinating powers of the mind. Withdraw the investigator from immediate personal touch with his materials and, while you may increase his output, you are sure to impair the quality of his work.

In what I have just said I have had statistical research particularly in mind. In historical studies the

case for individual research is, of course, even stronger. Constructive imagination counts for more, for the reason that in the historical research it has a freer range. However objectively the investigator controls his findings by his materials, the task of appraising their significance, of relating them, and of fitting them together so that the finished product shall be history and not merely an enumeration of events, calls in a peculiar way for insight, imagination, and judgment. History is true in the way in which a picture is true; not in the way in which a physical law is true.

It will be apparent now, I trust, just why I hesitate to point to certain particular economic problems and say that those are the problems to which investigators could best devote their energies. The man who has hit upon a significant problem and who sees its significance has already taken a long step forward in research. Now there are of course a number of research problems in which I have an especial interest and which seem to me important. But I could not make their importance, as I see it, clear to anybody else, without a long preliminary account of the general setting of each problem and particularly of its relation to the other problems and the tentative hypotheses which are in my mind. I prefer, therefore, not to attempt to suggest specific problems, but to speak instead of certain inviting general types or fields of research.

I shall put my emphasis on what might be called neglected types of research, for there is no danger that the fields which just now are being most actively cultivated will escape anyone's attention. At any one time

economists as a group have certain central interests in common. These central interests change as economic science advances, as the passing years bring new economic problems into the foreground, or when brilliant and challenging work by one economist attracts the attention of others. The war and the problems it bequeathed to the world have done more than anything else to determine the present central interests of economists. Problems in the fields of money and banking, of public finance, and of international trade have come into fresh prominence, as has commonly happened after long wars. Our war-time experience with government control of production and trade has helped to turn the attention of economists towards such questions as the future adequacy of the world's food supply, the distribution and control of supplies of raw materials, and the possibility of reducing wastes by introducing a larger element of conscious planning into the economic life of organized society. There is a new interest, also, in the nature of the national economic rivalries that make for war, and in ways of getting rid of them or controlling them.

Even before the war an increasing amount of attention was being given to the nature of the commoner types of industrial fluctuations, and, as everyone knows, a large number of investigators are now at work upon problems in that field. It is a field that lends itself particularly well to exploration with the aid of statistical methods. New materials are being put under survey, statistical technique is being perfected, and some of the intricate relations between the fluctuations of different series of economic phenomena are begin-

ning to be perceived more clearly. This new interest in establishing empirical correlations between different economic variables with some approach to quantitative precision has been carried over into other fields. A promising beginning has been made, for example, in extracting from statistics a more precise knowledge of the relations between supply and demand and price. In general, there has been a notable growth of interest in determining empirical uniformities of relation that are sufficiently stable to afford some basis for prediction. We can safely count upon a steady increase of research activities in such fields. For this reason I shall say nothing about the alluring possibilities in these fields, or the unsolved problems with which they teem.

The neglected fields to which I want to call attention lie close about us on every hand. One only has to look to see great stores of unexplored materials, rich with the crude ore of knowledge, awaiting only patient delving and artful refining. More than once a promising young economist has complained to me, that where he lived and taught, the materials for research were inadequate. To one such I said recently that a set of census reports contained enough materials to occupy his energies for the rest of his life. In our preoccupation with time series and correlation coefficients we are forgetting other aspects of what Sir Robert Giffen called "the utility of common statistics." A glance at the apportioning of space in some of the recent textbooks on statistics will suggest that we are unduly narrowing our notions of the field of profitable statistical inquiry.

The reports of our federal Census constitute, as a

whole, the best general record that any country has of its economic life. Few economists use them, however, for other than reference purposes. I cannot think of any other research task that would promise surer or more valuable results than a systematic use of census materials in an inquiry into any one of an indefinitely large number of problems. Some years ago the Advisory Committee of the Bureau of the Census (a committee made up of representatives of the American Economic Association and the American Statistical Association) recommended that the Bureau undertake to publish a series of monographs, each to be the work of a competent scholar, in which census figures were to be analyzed and interpreted. The Bureau has now published seven of these monographs, and a few more are to follow. Anyone who looks through them will appreciate their importance and value. There is room for almost any number of studies of this kind, for the materials are well-nigh inexhaustible, and endowments for economic research would be wisely used in promoting them.

With the recent general growth of interest in population problems it is to be hoped that a larger number of investigators will occupy themselves with problems in the general field of demography—a field which American scholars, with a few conspicuous exceptions, have unaccountably neglected. It is to be hoped also that inquirers endowed with patience and insight, and adequately trained in economic theory, will make a first attempt to get from our successive censuses of manufacturers and agriculture a new comprehension of some of the forces that have been transforming the

economic life of the United States. And there are large economic and social questions upon which careful studies of the changing importance of different ways of earning a living, as reported in the Census, would be certain to throw light. I shall not particularize further, but I think that it would be fairly easy to name as many as a hundred different important studies for which the reports of the federal Census would supply the more important part of the materials.

Of course there are other accumulating statistical records, imperfectly explored as yet by economists, which also provide inviting fields for research. I cannot dwell upon them or even specify them in detail. Many of them are by-products of the administrative work of governments. In the aggregate they cover a great variety of economic activities, and we should know more about a wide range of economic problems if investigators who have ideas and whose minds are open to new ones would address themselves to the study of these easily available materials.

Outside of the statistical field there is special need just now, I think, of careful and scholarly historical studies. There is always the temptation to paint on a large canvas, although painstaking work in miniature may have a larger permanent value. The man of genius may be able to see new sequences in the old materials that have been combed over by others, but the average investigator is surer of making his contribution if he gets hold of new materials, and uses them with the utmost care. This means, in practice, monographic work on a rigidly defined and limited subject. In my reference to the "average investigator" I

did not mean to imply that the miniature may not be on every account as important an achievement as work on a larger scale. I think that I have learned more about some aspects of the economic development of the Middle West from Professor B. H. Hibbard's history of agriculture in a single Wisconsin county than from any of the larger and more ambitious accounts. I do not see why the economic history of some American town or village should not be written in a way that would make it a contribution of the first importance to our understanding of the development of the economic life of the United States.

Many of our monographs on economic history have dealt with states. This is inevitable, of course, when the inquiry is concerned with the legislative or administrative aspects of some matter within the control of the state, such as taxation or banking or poor relief. Furthermore, some of the materials that are most easily available for the investigator are records of the law-making and administrative activities of states. But a state, after all, is an economic unit only in respect of matters of public economy. There is need for a series of concrete studies of various aspects of the economic development of carefully defined homogeneous regions and communities. There is also need for careful historical studies, not only of industries, but of individual business undertakings, of the careers of successful captains of industry and finance, of particular products or commodities, and of changing modes of consumption as well as of changing forms of production.

Perhaps I can make clear what is in my mind by

saying that we need to supplement our statistical inquiries, which have to do with aggregate and averages, by historical studies in which the individual and concrete aspects of economic activities shall be emphasized. Or if I have not yet made my meaning clear, look again into the *Wealth of Nations,* and ask yourself how much of the power of that book comes from Adam Smith's ability to take a broad and general view, how much of it comes from the rich concreteness of his interests and his knowledge, and how far it is born of his rare capacity to see things in *both* their general and abstract and their immediate and concrete relations.

It may be objected that to discover and bring to light *new* knowledge by means of these researches, so that the past shall not only "live again" but shall disclose new aspects of itself, requires not only the methodical study of sources but a degree of creative genius. Now I have to grant, of course, that most historical writing is imitative, just as most literature is imitative, for the power to see things at once truly and as no one has seen them before is given to few men. But in historical research, as I have already suggested, the investigator of average ability has it in his power to make substantive contributions. It is necessary only that he should be insistent in his search for new and fresh materials, and that he should weigh and ponder these materials until they fall into place in some consistent account of the particular episode or series of episodes with which he is concerned.

In the history of banking, for example, it is not so important to us as economists that we should know

more about banking laws or about the administrative control of banking by public authorities, as it is that we should know more about the actual operations of banks and the actual uses of credit in representative communities in different parts of the country. The careful study of the records of some particular bank—and it need not be a large bank—over a period of years, would establish a basis for an important and useful contribution to economics. There is opportunity for research of this kind, involving the gathering and careful scrutiny of new materials, in a large number of other fields.

I put special stress upon the requirement that some, at least, of the materials used shall be *new*. I mean that they should be not merely first-hand materials, "original sources," but new kinds of materials. If an investigator uses only materials of a kind that have often been exploited, he is likely to write, let us say, just another history of banking, of a familiar standardized sort, adding little or nothing to our understanding of the complicated structure of the economic world in which we live. Best of all, of course, is the capacity to ask really new and significant questions, and to attack one's materials with new and pregnant hypotheses in one's mind. But that capacity is rare, and any conscientious and thoughtful investigator is sure to find that new materials have a way of asking their own questions and of falling into new sets of relations. The goal of such research, of course, is not the mere accumulation of records, such as might delight the heart of the antiquarian, or even the disclosing of the "lessons of history," but rather a new and fresh per-

ception of some of the different factors that have entered into the total economic situation and have helped to make that situation what it is.

In such inquiries there is a natural division of labor, along geographical lines, among different groups of investigators. Differences of location are associated with differences in problems and interests and in the type and range of available materials. Especially at such an institution as this University, whose history is so intimately a part of the history of the State and the section in which it is situated, it would be not only unwise but virtually impossible, I should imagine, to formulate a program of economic research that did not give a relatively large place to investigations which would deal with the problems and utilize the materials which are nearest at hand. To one looking in from the outside it would seem that Virginia offers a peculiarly inviting field for economic research. With its different physiographic regions, with its long history, at once continuous and broken into easily discernible stages, with new forms of economic activity emerging from time to time and older forms surviving for a while, it appears to offer the investigator a generous variety of problems.

I shall not attempt to particularize further, for I do not want to try to list a series of specific problems. The difficulty, as I have said, is not that problems are scarce, but that they press in upon us in such abundance and variety that selection is difficult. If I were to point to some of them and say that in my judgment those particular problems are the ones to which investigators could most profitably devote their energies, I might

be diverting attention from other problems which equally deserve investigation. The important things are that the investigator concern himself with a real problem; that some goal be seen, however dimly, towards which his inquiries should converge; that he be openminded enough to permit new evidence to lead him in a new direction; that he remember that successful economic research calls for thinking as well as for routine processes.

In an economist's opinion there could be, of course, few wiser uses of money than in endowing economic research. Yet we must remember that our first and most difficult task is that of developing trained economists, so that the interests and energies of an increasing number of really competent investigators may be turned towards the study of economic problems. And it is not sufficient that the investigator be a "trained" economist, for he must have, of course, a native endowment of judgment and insight. In fact, as I look back over what I have written up to this point, I find that much of what I have been trying to say has probably been prompted by my fear that we are in danger of expecting from systematic research more than systematic research can possibly give us. There appear to be some who think that through research, and research alone, the social sciences might be as completely revolutionized in the course of the twentieth century as the physical sciences were during the nineteenth. As a result, we are asked to believe, society would be in command of its own destinies, in the same way, that, in a sense, man is getting a better command of the

forces of physical nature. Now all this seems to rest upon a failure to see certain fundamental differences between the physical and social sciences, and especially upon a misapprehending of what we really mean when we speak of "controlling" the processes of nature. But I shall not enlarge upon that topic here. My concern is merely with the rôle allotted to research.

Now research of itself—as a mere formal process, I mean—never accomplished anything. Routine research will give a routine product. The only kind of research that really advances our working knowledge of the economic mechanism or that really adds to our understanding of the complex structure of our economic society, is research that serves as the tool of the active, questioning, and relating mind of the investigator. Let the individual investigator, therefore, if he has passed his apprenticeship and proved his quality, have all the encouragement, all the freedom, and all the assistance we can give. In short, in the actual administration of funds for economic research, let us put our emphasis upon the quality and promise of the investigator, and let us be careful not to hamper him by prescribing too narrowly just what he shall do and how he shall do it.

I recognize, of course, that the young investigator's interests are likely to be narrow, and that if he is put to work upon new problems he will acquire new interests. For this and other reasons it appears to be desirable that a group of research workers should try to agree upon the general range of problems to which they are to devote their effort. As their studies proceed, a common field of interests will be created; new

methods and new ideas will become common property; one good piece of work will set a standard for others. As a result of building up a group interest in a common range of problems in this natural way, the work of the group will have a natural unity, and will itself grow in a natural way. I should expect that the results would be better than if a fixed and detailed program of research were drawn up at the beginning, into which the work of each individual investigator would have to be fitted.

Some eighteenth-century philosophers professed to believe that all the imperfections of human society might be got rid of, if only men would put their trust in reason. The same faith is held today, but the word "reason" has been replaced by the word "research." One does not have to subscribe to this creed—and I cannot subscribe to it—in order to believe that the increase in the number of able men who are bringing the spirit of scientific inquiry into the study of economic problems gives us ground for hoping that we shall learn how to deal with those problems more effectively and more wisely. I say "more wisely" as well as more effectively, because I believe that social wisdom as well as a better knowledge of ways and means ought to be one of the goals of research in the social sciences.

ANTHROPOLOGY

By

CLARK WISSLER

ANTHROPOLOGY

It was suggested to me that this was an opportune time to review the methods of research used in anthropology, especially such as were of significance to the social sciences. It may be supposed that any line of inquiry that has to do with the processes by which men get on in each other's company will have some interest to the social sciences. Anyway, we propose, at this time, to make a few brief statements as to what anthropology is, what it concerns itself with, trusting that, since its problems have to do with groups of men, women, and children, the matter will be of some interest to all students of human problems.

When a zoölogist or a physicist begins a discussion of this kind, he rarely feels it necessary to define his point of view; on the contrary, a psychologist or a sociologist does feel such a necessity, which often takes the form of an apology for the narrow and circumscribed situation chosen for investigation. Anthropology is even more put to it to justify its problems. At first thought, this might be attributed to the youthful state of these social sciences; but one need but recall the fact that zoölogy, as an academic subject, is also young. The answer, it seems, lies in another direction, for it is among the sciences dealing with human affairs and functions that we repeatedly find ourselves in

situations calling for perpetual explanations and excuses. Thus, when a psychologist rigs up an experiment in the laboratory, to find out how quickly fatigue affects one's discrimination of size or some other specific quality, the audience wants to know why he chooses so trivial a thing, and perhaps wants to hear the justification for ignoring the conceivably larger and more important aspects of life. But regardless of the audience, the psychologist himself, not infrequently feels that his problem may, after all, be too far away from the essentials in real life and that he is dealing with an artificial situation. It is not my intention to hold up the psychologist as the horrible example; for it seems that the sociologist and the social anthropologist are even less immune from the apologetic attitude. Each has chosen certain points of view, or sectors of the human problem, in full consciousness of the great body of human phenomena excluded and ignored.

On this occasion, however, it seems possible to dispense with any and all apologies and proceed to a statement of the objectives in anthropology and the manner in which they are approached. In the first place, the major field of anthropology is primitive man; anthropologists draw a line around the parts and strata of the earth whose history has and is being written, and announce that all the great unknown outside this barrier belongs to them. This is not saying that everything within the province of written history is ignored by anthropology. It is not; for like a rapidly growing militant, imperialistic nation, anthropology is laying hands on such problems of historic man as fit in with its immediate program. On the other hand, its atti-

tude toward invasions of its own great field by sociology, economics, etc., has been, for the most part, uncompromisingly hostile. For the present, then, we may safely say that all primitive peoples, meaning by that the prehistoric and non-historic, constitute the objective of anthropology. No one can accuse anthropologists of excessive modesty.

However, does this mean that every aspect of these primitives is covered? Certainly not, but still the scheme is ambitious enough: to seek facts as to bodily form and appearance, social behavior and mental attitude, not only for the living, but so far as possible, for all who have lived at any period, however remote. To use an analogy taken from other sciences, the anthropologist is both a naturalist and a fossil hunter, but confines his efforts strictly to the human genus. Even so limited, the task is a huge one. A resumé of the main objectives in anthropology as practised today, while impossible to state adequately in a few lines, may well stand as:

1. To note ultimately the kind, bodily appearance, and culture of the people living in any locality of the existing land mass of the earth, at each successive time stratum, from the present back to the very beginning.
2. To compare the peoples of these localities and strata, the one with the other, seeking their genetic and historical relationships.

Ultimately, anthropology may be expected to answer such questions as, how long since the first people lived at the place where we now sit? How did they look? What kind of life did they live? We have dwelt upon

these general aspects of anthropology to what may seem undue length because they have a bearing upon methods and objectives in anthropological research. The main job in anthropology seems to be, finding things out. Anthropology has been and is engaged in a kind of world-wide survey of man.

One of the ideals in research is to achieve objectivity. The fortunate position of anthropology today is that its problems were so chosen as to be, in a large way, objective. No one deserves any credit for this, since it was not a conscious process. Anthropology did not intend to make itself so, and it may well be doubted if many anthropologists today realize that they have attained some measure of objectivity. But such is the case, one division of anthropology, viz., archæology, is one of the most objective of sciences, when pursued according to modern methods. Perhaps next in order is the biological problem, or man's comparative anatomy. One proceeds here by the study of objective materials. And finally, we have the study of living cultures, the problem being to record the speech, customs, and habits of the individual tribes. The procedure here is somewhat less direct, but in so far as it consists of observations and records, it also can claim to be objective. Yet, in all cases, to attain an objective point of view in matters of culture is far more difficult than in either archæology or race anatomy.

The foregoing, it is hoped, will serve as a definition, or at least, as a characterization, of anthropology and its field. Such statements seem justifiable, for when one turns to the literature of anthropology for the

first time, he is bewildered by the overwhelming mass of recorded facts. Even if he picks up what purports to be a general introduction to anthropology, he may still be baffled, because the author of such a volume has sought to give the reader a condensed inventory of this store of anthropological facts; and it is conceivable that the reader will close the book with little more than a confused idea of a world full of hundreds of queer peoples.

However, it is not my intention to offer you another such inventory of anthropological facts, but to consider what have been the "drives" leading to the massing of this material and what have been the insights achieved by the few outstanding geniuses engaged therein. We are aware that some anthropologists are very much in love with fact finding, and care nothing as to what can be done with these facts after they are recorded; yet we shall see that the great contributions to anthropology have come from attempts to discover the processes at work in human communities. Science, it is frequently said, consists not of facts, but the discovery of relations between them, relations of wide validity. It is sometimes denied that any such processes exist in human society; that is, none of wide validity, that everything that happens is fortuitous. The striking fact is, however, that the few outstanding leaders in anthropology believed otherwise and their insights suggested relations between facts that promised wide validity. The pursuit of such relations may be defined as functional, in contrast to a fact-finding objective.

It is well to note, however, that the weight of

opinion among contemporary anthropologists is emphatically in support of the view that the living tribe is to be taken as the point of regard, irrespective of how the emphasis is to be apportioned between fact-finding and functional problems.

We are not unmindful that it may be difficult to follow a discussion of concepts in anthropological research, but perhaps we can get on if we keep in mind this fundamental view, that problems are sought in the living group, tribe, or whatever you may choose to call the social unit. Nor should it escape us that this living group is a biological affair and that we are dealing with certain aspects of its behavior. Then, again, human groups show great sensitiveness to certain aspects of their environment, and, consequently, the economic basis of human life is never to be lost sight of. Finally, there is the matter of time perspective, for the time sequences of the events in social life are essential to an understanding of the processes involved. In general, then, we need but keep in mind the biological nature of the group, the economic basis to life and the time perspective, to be oriented for this discussion.

Anthropology was a recognized subject of inquiry by the year 1800. The great era of voyages to distant lands, beginning about 1492, introduced Europeans to a large variety of savage peoples. From the first, these were objects of study. Yet, it was not only new peoples that were discovered, for the plants and animal life of these new countries were equally enticing, and it is not strange that both zoölogy and botany soon took form. Linnaeus, regarded as the founder of systematic

biology, died in 1778. He conceived all living things as parts of one great system, gave man his designation, *Homo Sapiens,* and set up four races distinguished on the basis of skin color and other qualitative characters. Thus, the first fundamental step in anthropology was taken, grounding it upon a firm biological base. It was not long before the human problem was treated as a subject in itself, and, following the lead of Linnaeus, attempts were made to classify all the known tribes of men, not only by their anatomy, but according to their modes of life and their beliefs. Blumenbach introduced measurements into the classification and early in 1800 Prichard, in England, produced a great synthetic work on anthropology. He sought to discover the origins and relationships of living tribes by classification and comparison, using all the data available—anatomical and cultural. It is sometimes overlooked that the unity of anthropology lies in the objective rather than in the methods employed. It has shifted its point of attack and changed its methods many times, but always the ultimate objective has been the same.

In general, then, it can be said that the basic outline of anthropology had been laid down in the first decade or two of the nineteenth century. Yet while the basic idea can be traced to Linneaus, the subsequent history of anthropology indicates that its final form is due to the successive influence of three concepts in succession.

These great concepts served to crystallize anthropology, and belong in history, to the years between 1800 and 1875. They are, in order of their appearance,

the discovery of linguistic families (about 1808); the Darwinian concept (1858); and the conception of the biometric law, or law of variation (introduced in anthropology about 1870). Fully to grasp the significance of these three great concepts we must dwell upon them for a moment.

It may be surprising to hear that the discovery of linguistic families had a profound influence upon anthropology, or that it offered a fundamental research lead. But, if we read history aright, this discovery made a great stir in the intellectual world of the time, and even now, as one looks back upon it, the discovery appears as a great empirical lead to research in the humanities. Before this insight, scholars were groping for a way to deal with the languages of savages, these languages being carefully studied that the scriptures and textbooks be translated into them. In America, the amazing multiplicity of these savage tongues was discouraging, but on the other hand, this multiplicity set a challenge to scholarship. Hence, we are not surprised to find that a few gifted minds turned to the subject with scientific motives, rather than practical religious ones. Thus, Jonathan Edwards, in 1788, studied the structure of some Indian languages and almost grasped the idea of linguistic families. Had he gone on with these studies, it is a fair bet that he would have made the discovery and thus anticipated European scholars. Incidentally, this audience may be reminded that Thomas Jefferson had himself collected a store of materials for the study of Indian languages, which collection was destroyed by the burning of his library in 1801, which again goes to show that the

scientific study of languages was in the air and that a discovery might be expected.

The great insight, however, came from abroad. Catherine the Great, of Russia, is said to have discovered the structural affinities defining the Indo-European family of languages; this was done by comparing vocabularies and word structures, an empirical process. This discovery was followed by the meteoric rise of the continental school of philology, and William von Humboldt, one of its great leaders, gave particular attention to American Indian languages. The effect of these discoveries upon colonial thought was electrical. In 1816, the American Philosophical Society, in Philadelphia, appointed a committee to gather new data for classifying Indian languages. In Boston, under the leadership of Pickering, the American Academy of Sciences, became active. But we must forego the details of this interesting development, because to follow it through would bring us down to this very hour.

Now, why, it may be asked, do we attach so much importance to this discovery—a discovery that belongs primarily to another science, and not to anthropology itself? The answer is not difficult. The relationships of languages were discovered by direct, objective methods. We are not unmindful that in Europe, philology ran riot for a time, believing that written history could be recovered by this method. But anthropology stuck to its homely task. What anthropology saw in the concept was a direct empirical approach to a classification of primitive men by their speech, a classification that promised to reveal genetic relationships. Further, unity of speech and social unity

seemed to go hand in hand, so that classification by speech promised to be basic and it is still the most satisfactory objective classification for primitive tribes.

To complete the picture one need but add that anthropological linguistics is still industriously following this great lead. Fortunately, there are still so many languages to classify that the anthropologists have so far been saved from a riot of linguistic speculation and held down to an objective empirical procedure, thus setting an ideal for other lines of anthropological research.

So much for the linguistic lead. We shall but glance at the Darwinian concept and the evolutionary hypothesis, because you are familiar with how that conception quickened the growth of all the biological and social sciences, how it brought the study of man up out of the shadows of mysticism and placed it upon an empirical level. Its effect upon anthropology was profound, as we shall see. Also, the later discovery of biometric methods did as much for the biological aspect of anthropology as for biology and psychology. Neither of these discoveries, the theory of evolution nor the biometric law, can be claimed by anthropology, they came from the outside; however, Francis Galton was in large measure an anthropologist, and it is to him that a great deal is due in the matter of biometric methods.

Having now called attention to three important leads in research, which in one way or another have played a part in the initiation and differentiation of anthropology, we turn to the leads developed by anthropologists working with anthropological materials.

Those of most importance seem to be: the discovery of time sequences by the archæological method; the fundamental social significance of relationship systems in the tribe, or group; the discovery of what is called animism, or the beliefs associated with the dual conception of the world—material and immaterial; the method of geographical distribution and the culture area.

Turning, first, to the archæological method, we noted that, while the announcement of Darwin's theory of evolution was credited with a profound influence upon anthropology, still the linguistic method came on the scene some forty years earlier. So also was the theory of evolution preceded by two other important developments in anthropology. Thus, the stratigraphic concept and the discovery of relationship systems as a part of social organization were launched before Darwin's announcement, but, on the other hand, these two concepts were so new at the time of that announcement that they were profoundly influenced by the theory of evolution, and to some extent diverted thereby.

However, in order of time, the next new lead is the stratigraphic conception. Because this is in the main a matter of archæology, it may not appear as of prime importance to social science, but since it does provide one of the great empirical leads to the study of culture sequences, it should be considered here. The idea of strata, superimposed one upon the other, now seems a commonplace. In geology, the idea took shape as a research method earlier than in anthropology, but it is likely that the idea of buried cities is still older.

Nevertheless, the insight of successive horizons in the archæology of man did not come until Danish scholars began their epoch-making investigations of peat bogs and shell-heaps. Under the leadership of Thomsen, they established the horizons of Stone Age, Bronze Age, Iron Age. A little later, Sir John Lubbock, familiar with new data on early man in France and England, saw that two horizons preceded the Bronze Age, designating them as the Palæolithic and Neolithic. In this sequence, Palæolithic, Neolithic, Bronze, and Iron, Sir John Lubbock saw the basic character of the phenomena. True, he was carried away with the idea of evolution, that idea having then come to the fore, and set up a scheme of social evolution. The latter, however, was speculative, whereas the sequences set up, first, as based upon the empirical work of the Danes and, later, the French, were based upon objective work and so still stand. Today the stratigraphic method has been further improved and is still registering triumphs in research.

By the stratigraphic method we mean, in general, the conception that man's bones and remains of his handiwork have been deposited in the order of their appearance in a given area, and further, that the relative ages of these deposits can be determined by the association of artifacts with other objects. The procedure is wholly objective in so far as concerns the determining of relations between the objects themselves. In its objective and empirical character, this method of research is similar to the linguistic lead, though even more objective. The research insight upon which it is based brought to anthropology a great lead, the dis-

covery of an objective relation of wide and seemingly universal validity. The promise then held out, and still held out to investigators is, that by methods wholly objective, one may, step by step, solve the problem of man's biological as well as social history.

At this point, it is well to be reminded that one important problem in social science has been, and still is, to discover how the basic processes came to be what they are and also, if one is merely interested in institutions and culture achievements, how they came to have their present form. One can speculate about this, can think out what he feels to be the most probable steps in the matter and then write a book stating the case. This has been done many times in the past, but such interpretations are likely to come to nought, because they are not based upon facts of time sequence. Whenever by the archæological method, one can demonstrate that in a certain place, or places, one form of social procedure succeeded another; if it can be shown, for example, that in one or more areas, pottery came after basketry, etc., then we have facts to hold to in the making of an interpretation. If again it can be shown that pottery and agriculture are usually found together, is not that of importance in one's interpretation of social processes? Again, when intentional burial appears back in the cave period, we find mortuary offerings with the body; and, if you allow your attention to dwell upon that for a moment, it will become apparent that this homely archæological fact serves to give time perspective to certain well-known beliefs respecting life and death. The point is that we must have some kind of facts as to sequence in

time, if a worth while interpretation of social change is to be attempted. In such a case, any fact is better than no fact. To repeat, then, the archæological method is the primary method for establishing culture sequences, and as it advances our knowledge, we may expect more and more facts of time sequence of importance to an understanding of social processes.

The stratigraphic concept had its birth in Europe, as we have seen, but we now turn to the New World, for it was an American, Lewis H. Morgan, who discovered relationship systems, or at least, achieved an insight into a type of phenomena, still intriguing anthropology and the social sciences as well. With the theoretical work of Morgan, most of you are familiar, but perhaps few of you have taken the time to look into his life and thereby become aware of his important contribution to anthropological research. Morgan was born in 1818, in the Iroquois country of New York State, and even as a boy learned the language of these Indians, taking up enthusiastically the study of their institutions. By 1856 he had thoroughly mastered the subject and, if he had contributed no more than his exposition of Iroquois social organization and the famous league of the Iroquois, his claim to distinction could not have been disputed. But this was the least of his achievements. So far, he had assumed that the peculiar methods of reckoning relationship among the Iroquois and the basic part this played in their social organization was something unique and developed by that tribe fortuitously. But in 1858, while on a business trip to Michigan, he met some Ojibway Indians, and on casual inquiry as to their relationship scheme, discov-

ered a closely parallel system. This was to him a revelation; no longer could he say that the Iroquois system was a mere accident. Further, he suspected that in this direction might lie a distinction between primitive and European peoples, but he saw clearly that the only way to deal with this problem was to approach the subject empirically in a world-wide survey. Moreover, he conceived of the European social order as a growth by natural processes and that principles of social behavior, having wide validity, could be discovered, once the data for primitive peoples were available.

From this time on, Morgan gave his whole time to the gathering of data, visiting many distant Indian tribes, and corresponding with people in many parts of the world. It is interesting to learn that he was encouraged by Agassiz, and also by Henry, the most famous physicist of his day and head of the Smithsonian Institution.

For the most part, Morgan is known to the general student only as the author of a theory of society, a work not now seriously considered, but the anthropologist knows that the great drive to obtain accurate data from the field and to see in relationship systems a lead to fundamental problems in social organization not only began with Morgan, but that Morgan himself set a high standard in field-work. So whatever may be said of his final book on the nature of society, Morgan spent most of his life dealing with objective materials and proceeding in a scientific manner. This is no doubt why he was supported by empiricists like Agassiz and Henry and elected a member of the National Academy. In these days, when the door to the

National Academy is barred against anything that implies a social problem, it is refreshing to know that there was a time when the attainment of sound method in any field was recognized as a sufficient qualification to sit among the mighty.

But perhaps we should pause at this point to see just what it was that Morgan initiated. He believed that the forms of society existing among primitive peoples represent types, or steps, in the successive changes by which the social state of our time came to be, and that these forms of society were based upon systems of relationship, which, of course, involved the family. The existing systems he discovered to be of two types:

a. Descriptive
b. Classificatory

By descriptive, he meant such systems as we have, indicated by son, brother, sister, father, etc., in which the blood and marriage relationships of the individuals concerned is made clear. In the classificatory systems, the kin in one generation may be grouped under one term—thus, a single term may include father, father's brothers, father's male cousin, mother's sister's husband, mother's female cousin's husband, etc., and likewise all the males of the grandfather's generation may be called by a single term. Morgan's field studies revealed many variants of such classificatory systems, and a student of the social sciences need not be told that these empirical inquiries have raised many fundamental problems, most of which are still unsolved. In later years the closest follower of Morgan was the English anthropologist, Rivers, who added the genea-

logical method in field research, as an elaboration of Morgan's technique; that is, as the first step in the study of a tribe, the investigator prepares a census of the tribe members and lists their relationships in a genealogical table. In this way, one may soon arrive at reliable data as to *who* is related to *who* and thereby come into an understanding of the social grouping used by the tribe. With this knowledge in hand one may begin to find out how these groups function in the life of the tribe.

As before, to enumerate the many investigations that have followed the lead of Morgan would make a long story and would review a large section of anthropology as we find it today. We must, therefore, pass directly to the work of the great English anthropologist, Tylor. As we have said, Morgan was born in 1818, Tylor in 1832. Morgan, however, died in 1887; Tylor in 1917. Tylor, then, belongs to a later generation. Nevertheless, Morgan in America and Tylor in England stand out as the founders of social anthropology. In contrast to Morgan, Tylor did not make first-hand studies of primitive life, but he showed great skill in evaluating observations of others and in treating them objectively. On the other hand, he was from the start strongly influenced by the evolutionary concept.

If one sets out to review Tylor's contributions to anthropology, three closely related concepts claim attention—animism (the best known of these), survivals, and adhesions. Of these, adhesions is the most empirical; in fact, it is a method rather than a conception, proposed by Tylor in 1889.

It had become plain to Tylor that in primitive life certain customs tended to appear in clusters. Thus, in the same tribe where one must not look his mother-in-law in the face, one often found the husband going to live in the wife's family, etc. Even Morgan claimed certain associations between specific relationship systems and concepts of property and social privilege, and recently Malinowski reaffirms another of Morgan's associations in stating that, where there is ignorance of the part played by the father in producing offspring, one finds certain forms of classifying relatives.

Tylor conceived that such associations might be accidental, or a matter of chance; or, on the other hand, a correlation might exist between them. In order not to commit oneself in advance, he proposed the name of adhesions for such associations. Then, he recommended the application of statistical methods to determine whether a correlation existed. Of course, if a correlation is found, one is face to face with a situation that suggests a functional relation. At least, one can no longer say that the association in question is accidental, or fortuitous. There are few problems more fundamental than this. As just stated, Tylor's method was to apply the mathematics of statistics and correlations. For a long time no attention was paid to this proposal and it came too late in Tylor's life for him to follow it up. Now, however, the method is coming into its own.

We shall pass over Tylor's concept of survivals without comment and turn for a moment to animism. In 1871 appeared Tylor's great work on *Primitive Culture,* which was, in the main, his formulation of the

concept of animism. He defines animism as "the belief in souls and in the future state, in controlling deities and subordinate spirits, these doctrines practically resulting in some kind of worship." In common usage animism is defined as "the theory of souls," but while this definition is crisp, it fails to give an adequate idea of the conception.

We must remember that at the time Tylor first wrote about animism, to treat the subject of the soul in any manner except according to the word of God was heretical. He, however, reversed the process, began by reviewing the objective facts of primitive belief and while so engaged found most everywhere the same attitude—a universal belief, which he called animism. In other words, he regarded the dual conception of the world, as not of supernatural origin, but as a natural result of the functioning of the human mind. To put the case in the terminology of today, Tylor claimed universal validity for animism as a culture process. In this sense he may be regarded as the discoverer of animism and as laying the foundation to the later discussions of religion and ceremonialism.

As in the case of Morgan, we need not follow through to their ultimate conclusion the theoretical interpretations of Tylor, since we are now interested solely in the discoveries giving us empirical leads in anthropology. Having found it an objective approach to the study of beliefs concerning the inner nature of the world, life, death, etc., and demonstrated the universality of certain beliefs, Tylor began to speculate as to the causes or the forces that fastened the dual view of the world upon mankind. Volumes have been

written and are now in the making, arguing pro and con as to the validity of Tylor's explanations and students are required to learn them, in order that they may be unlearned, but all this should not blind us to the drive Tylor made to attain an objective approach to belief and feeling, nor to minimize the value of his leadership.

Before leaving this subject, however, note should be taken of an empirical problem to which Tylor also contributed. His earliest important publication, *The History of Mankind,* contained several classical studies of cultural processes, falling under the modern designation of material culture. The best known of these is the history of fire-making, a demonstration that by the objective study of fire-making appliances and their distribution over the world, one may arrive at an understanding of the matter. The essential point is, however, that the objects made here and used by man are objective records of social processes. As all museum visitors know, the scientific collecting of such objects is now an important part of anthropological research.

However, the great leader in such scientific collecting seems to have been Augustus H. Lane-Fox, later, Pitt-Rivers. In America, the man who did most to dignify the scientific study of material culture and museum collections was O. T. Mason. Closely identified with these studies of material objects are questions of ornament and other aspects of art. Finally, it should be noted that the economic basis to culture is best approached through scientific collecting; for example, the study of food, shelter, clothing, etc. The objective character of studies in material culture and the making of

museum collections is too evident to call for further comment.

Finally, we may close this very inadequate review of research leads in anthropology by a brief consideration of the German Historical School. The particular slant taken by this school is, in part, explained by the development in geography, beginning with Alexander von Humboldt and Karl Ritter, both dying in 1859. In the same year, Waitz brought out his *Anthropologie der Naturvölker*. But the most distinctive leader in this school was Ratzel (1844-1904), best known for his standard work on Anthropogeography. In contrast to Tylor and Morgan, these geographically minded scholars saw no problem in evolution; the changes in culture observable were, to their minds, explained by migrations of peoples and borrowings. They also put great store upon the geography of habitats and the consequent economic basis of culture. But, in the main, their ideal was descriptive and emphasis was placed upon the geographical distribution of living peoples.

As may be suspected, the ideal of this anthropological school was exploration and description, in the main, a fact-finding procedure. However, to the geographers who initiated this school we must credit an insight into geographical distribution and the sensing of its importance as a research lead. Ratzel had, in fact, conceived that all living peoples were related and influenced by each other. So, following this lead, Græbner, in 1909, put forth the general theory of diffusion, which is, in substance, that wherever similar customs are found, even in lands separated by oceans, they are to be considered as examples of borrowing.

In other words, all similar social procedures had a single origin, and in one tribe only.

At first glance, this may seem to be in accord with the English evolutionary school, but the difference is fundamental. The German school regarded every social procedure as accidental and that, if a specific type of social procedure should repeat itself, such repetition would be no more frequent than the expectancy expressed in the law of chance. On the other hand, the English school considered successive forms of social procedure inevitable expressions of the biological constitution of man. If they repeated themselves, it was the proper time sequence for them to appear. Naturally, to state the distinction between these two schools in this way is too sweeping and will need qualifications, but yet it serves to characterize them.

Now, you may see why the German school is sometimes called the historical school; though diffusionists would be more to the point. Evolution means nothing to them, everything is explained by borrowing; so with this school the only problem is, when and from whom was each trait of culture borrowed?

The German school has exercised a strong influence over the American anthropology of our time, particularly in the study of living tribes. Fact-finding and the exploitation of geographical distribution as evidence of borrowing have been the order of the day. It is true that the American diffusionists have refused to go as far as Græbner and his followers, but they nevertheless believe in the principle, regarding it as the chief research approach. If you read the discursive American literature upon diffusion, it will appear that, while the

American diffusionists accept independent origin as an academic theory, in actual research they try to explain correspondence in culture by diffusion. Our present interest is not in theoretical discussions, but in research leads, and it can be said, safely, that one of the great empirical leads in anthropology is the concept of distribution.

It is not always easy for a student of the social sciences to understand the attitude of the social anthropologist in the matter of geographical distribution. Always, when a specific social procedure is mentioned, the anthropologist demands the geographical range of the custom. He values the facts of distribution, for one thing, because they are so objective and readily subject to verification. Distribution is one of the few things he can hold to with confidence, and consequently he makes the most of it. Thus, in seeking the relations between social procedures and their functions, the geographical distribution is the point of departure. The student of the social sciences, on the other hand, seems to seek processes or functions of universal validity, or such as are assumed to be operative wherever and whenever a normal social group carries on. From such a point of view, geography may be of no particular consequence. In the main, however, the social science student deals with historic peoples, and makes but occasional excursions into the field claimed by anthropology, to secure illustrative materials. Further, it is within the limited bounds of Western European civilization that the social student works, and so it is easily understood why he cares so little for the geography of the case.

Turning again to leads in anthropological research and recalling the statements concerning the concept of diffusion, we note that the American school of anthropology has come into a regional conception of social development. This school recognizes that diffusion has been a dominant factor in making any given tribal culture what it is, but observes that diffusion operates best in circumscribed areas. Or, to put the matter in objective terms, culture traits occur in "patch formation." This conception has been formulated as the culture area idea and promises a lead not only in social anthropology, but in some aspects of history, economics, and sociology as well.

As conceived, the culture area is a research lead comparable to those we have discussed, but is so new, so near to us, that it cannot be disposed of in the same way. There is no great accumulation of researches to evaluate, the immediate problem being to find the fundamentals in the culture area. Furthermore, whereas the conception arose in a geographical atmosphere, the situation expressed in such a concept has functional implications. Thus, when one comes face to face with a culture area, it appears that some important relation seems to hold between environmental factors and the culture area. Federations of tribes seem to take place naturally when there is a community of culture; this may or may not be significant, but the interaction of one tribal group upon another presents one of the important problems in the social sciences. And since there are many culture areas in the world, all seemingly of the same form, general tendencies should appear, if such exist.

We set out on this occasion to discuss the methods of research and the lines of approach in anthropology bearing upon social science problems. In looking back over the leads around which anthropology has developed, we are impressed that these were not arrived at speculatively, but were insights achieved when working with objective materials. For the most part, the discoveries could not have been foreseen. Naturally, the observations used were objectively verifiable. The degree of objectivity—if there is such a word—varies in the different leads. As we noted, in archæology the evidence is vested in material objects and their physical relations in space. This is about as objective as any of the sciences calling themselves natural. The linguistic method is but slightly less so, since spoken words are used with great precision and can be recorded with a high degree of accuracy. Morgan, working on relationship systems, dealt with native names for classes of kin and their application. This was about as definite as language; it at least guaranteed the objective characters of his basic social data. The least objective of all are the materials with which Tylor concerned himself; viz., the beliefs of mankind. Observations under this head rarely rise above the level of "what an individual thinks about a thing." To determine what is common to the thinking of the group, one must depend upon interviews with representative savages. The difficulties in such a procedure are obvious, but the saving grace is that the field observer is really interested in what the individual thinks "he ought to believe," or what the tribe expects him to believe. Yet, while this simplifies the problem somewhat, observations under this head

cannot be as objective nor as verifiable as Morgan's data, for example. Nevertheless, field workers do seem to get relative accuracy in these observations, an accuracy sufficient to get consistent results. On the other hand, if ceremonial procedure is studied, it is possible to make accurate objective records in terms of what the savages do in the course of such ceremonies. Furthermore, it is believed that whatever measure of success has come to social anthropology has come within the fields of research where objective observations could be made, and the results seem to have been lasting and illuminating in proportion to the objectivity achieved in these initial observations. This is what one should expect and is, therefore, commonplace.

However, in passing over into the social sciences, as usually conceived, i.e., studying ourselves in social action, we should recognize the added difficulty of being objective. So long as we are concerned with a cannibal tribe, we care little what moral or social value be placed upon the observation. We are quite prepared to believe them murderers, filthy, obscene, etc., if the facts so indicate. On the other hand, when concerned with our own society, the case is different. Anthropology itself encounters the same difficulty whenever it turns to the civilized nations. Even students of comparative race anatomy cannot deal with civilized man in the same calm spirit as they take up the savage. So the fundamental difficulty in the social sciences is not so much inability to find an objective means of approach as to keep the objective observations from pressing upon our nerves. But since in this day and time everyone is aware of this, it need not be men-

tioned. Yet it is important to recognize that anthropology has enjoyed a certain advantage over sociology, for example, in that its main field does lend itself to objective observation. So while we doubt that the methods of anthropology can be directly incorporated into the social sciences, these methods may have a suggestive value.

Before closing, however, we wish to disclaim that we are making a fetish of objectivity. Where the objective approach has conspicuously triumphed in anthropology, it has done so because the objective character of the data was natural. There was nothing unusual about the method of observing; it was merely the selection of something easily observable and easy to record. There is no denying that a genius for insight was behind it all; that has little to do with the matter in question. For example, it has been suggested that in the study of our own social group, we adopt the descriptive scheme and terminology of the field anthropologist; and that in this imitative way, one might achieve the same degree of objectivity. This, however, though a novel experiment, would fail, because of the artificiality of the procedure. The anthropological scheme was worked out to meet existing conditions surrounding the investigation and these conditions, so far as we can see, are not the same as pertain, for example, to the study of a town in the United States. What one would obtain, then, would be a pseudo-objectivity. One must see his problem in the relation of such observations as can be made with a degree of accuracy sufficient to the end in view. When that is achieved, another new insight, or lead, in the development of the social

sciences such as we have passed in review, will be added to the record. The imitative type of objective empirical method sometimes appears in the literature of psychology, sociology, and anthropology, in some cases taking the good name of statistics in vain. Such labor may be justified as the trial and error method of getting on, but if such specific methods are set up as practices, the price we may be called upon to pay will be too great.

In conclusion, we may refer again to the objectives in anthropological research. Primarily taking the point of view of European civilization, the object is to find out what kinds of other people there are and what they do; to seek evidence for the earliest appearance of man on the earth and to recover the sequences of social achievement and biological development. All this may be regarded as descriptive in the sense that history and geology, for example, are descriptive, but we have seen the rise of functional problems and attempts to achieve an understanding of human biology and of social phenomena. Some important leads have developed, as we have seen, largely as insights, or clues, to an understanding of specific phases of group life. New objectives of this kind may arise at any time, but no doubt anthropology will go on, as in the past, in the faith that the processes involved in the bodies and in the group-settings of the peoples studied are the same processes as operate among ourselves here and now. But, seemingly, the strength of anthropology as a member of the social sciences lies in that it is assumed to give a new point of view. Just what this conception is proves difficult to formulate. For example, it has been

urged that anthropology be introduced into the undergraduate school as an informing course on the background of history and the social sciences.

The human problem would give the necessary unity, the point of relation, and in large measure prepare the way for an understanding of contemporary society. Our present interest, however, is in the research aspect of anthropology as one of the social sciences. We see in the history of anthropology how its present status comprises the end results of several research leads, based upon the recognition of as many different kinds of phenomena in human community life. Though, so far, anthropology has concentrated its interests among the less civilized, or peoples without history, there is reason to believe that civilized historic communities also present problems of the anthropological kind. While it is doubtful that the important problems in contemporary civilization are identical with those so far developed by anthropologists, there is reason to believe that the attempt to study civilized communities by anthropological methods will contribute something to social science. At least, it seems worth while to integrate anthropological, psychological, and sociological research because such a procedure holds out the promise of a clear understanding of contemporary civilization.

STATISTICS

By

ROBERT EMMET CHADDOCK

STATISTICS

Methods of gathering quantitative data are a necessary part of statistical theory. Methods of description and analysis can be developed only after the accumulation of sufficient materials to work upon. Devices and inventions which facilitate recording and handling data stimulate the collection of new facts. Wealth of statistical raw material becomes a source of embarrassment, unless, for scientific purposes, it can be described in brief, summary formulæ. Statistical inference and prediction depend for validity upon a sufficiently wide basis of experience, past and present, adequately classified, analyzed, related and described.

Our discussion, therefore, should relate to three phases of the general subject—(1) to problems which are involved in the procedures of assembling statistical data and in deciding as to their reliability and completeness; (2) to the problems which arise in developing methods of analysis and description of these raw materials; (3) to the sound basis, if there is one, of statistical inference and forecasting.

Our fields of special interest, in economics, demography, education, political science and sociology exhibit varying situations as to the accumulation of statistical materials, and as to the development of quantitative measures and methods of analysis. The theory of probability was applied very early to vital statistics in the

construction of life tables, upon which the theory of life insurance is based. Mortality experience became the basis of estimates of the probable length of life. This does not mean that the original records of mortality are perfect even today or that the classification of the causes of death is final. It is probably true that better diagnosis accounts for a large proportion of the apparent rapid rise in cancer mortality. The extensive application of statistical methods to economics was delayed to a much later period on account of the paucity of quantitative materials and the complexity of the factors to be measured. The accumulation of data has been very rapid since the beginning of the present century, especially during and since the World War.

One of the most striking lessons of war experience to economists was the necessity of carrying their analyses beyond the stage reached in most treatises on the various subjects. Grave decisions turned upon questions of magnitude. Quantitative problems arose in almost infinite detail. The answers were in figures. If they did not exist in official records they must be collected or estimated. We have learned from war experience that this quantitative element is fundamental in the economic problems of peace. It is not enough to consider qualitatively the kinds of causes and consequences. In dealing with specific situations magnitudes are involved. Economics is becoming a quantitative science. There is a growing number of official agencies engaged in fact-gathering, and a rapidly increasing number of organizations for social research.

Progress has been made in the more exact formulation of problems, in the more precise definition of

units, in methods of standardization and classification, and in the technique of analysis and presentation. Yet even a cursory review of the discussions going on at present concerning methods of constructing index numbers, of measuring trends and seasonal fluctuations, of analyzing cyclical movements and explaining them, reveals how much is yet to be done. The development of reliable methods of statistical inference and forecasting would be expected to lag behind those of fact gathering and of analysis and description. Besides, there is a strong temptation for investigators in the social sciences to risk general statements and inferences on a slender basis of fact. They are influenced by emotional biases which are partly explained by the fact that they deal with human relations, with traditions and customs.

Compared with other social sciences, economics is favorably situated for the adoption of quantitative methods. Many economic activities are easily measured or counted. The number of cases is large, many ready-made units are available, and situations are standardized to an increasing degree. In the field of education and psychology, those who wish to make mental measurements have faced the problem of transforming qualitative distinctions into quantitative scales. They have had not only the difficulty of creating their measurement data but the advantage of designing their tests for specific purposes, instead of finding the materials already collected as by-products of private and governmental activities, as is so largely the case in economics.

A fundamental thesis of this paper is that inductive processes and deductive processes should go hand in

hand. They are intimate parts of a complete system of scientific investigation. As a rule useful fact-finding inquiries have not been undertaken without reference to some rational scheme of things. Creative imagination formulates the problem in the light of all past experience in the particular field. The investigator arrives at a generalization from particular cases observed, analyzed and compared. He starts anew with a generalization as his hypothesis and reasons to the particular applications which must agree with the facts of experience, if the original hypothesis is true.

But a hypothesis need not be true to be useful. Progress has been made if a plausible hypothesis is shown to be false or inadequate. For example, industrial accidents are not due mainly to the carelessness of the employees. Crime is not solely a matter of individual responsibility. Under specific conditions there is an economy in maintaining a high level of wages. Errors of the social scientist have been due more often to false or incomplete premises than to defective reasoning. These premises are difficult to correct because they may be due to one-sided experience, to traditions, or to subjective considerations. Statistical approach has the merit of attempting to objectify experience and to make the results appeal as true to others as to the particular investigator. The application of statistical methods has had for one of its chief objectives the checking and improvement of premises. At present economists are more or less puzzled by the phenomenon of increasing profits since 1922 while wholesale prices have tended to decline and wages have remained on a high level. The former generalization that growing profits

accompany rising prices has seemed to be untrue during the past few years.

Statistical Induction

The greater the number of factors operating and the greater the variability of the data the larger is the body of inductive evidence required to establish a reasonable degree of probability for conclusions. For this reason induction must play a leading rôle in scientific investigations in the social sciences. The validity of conclusions must depend upon a broad basis of facts. Deductive reasoning in these fields can be built securely only on a firm inductive foundation. In any case inductive generalizations do not attain certainty but depend upon varying degrees of probability. They describe and explain trends and average relationships. Furthermore, these general statements, describing relations of social phenomena in a changing world, must not be regarded as ultimate truth; they are probably only first approximations.

To an ever-increasing extent phenomena in the fields of economics and social science are measured and described in quantitative form. These data, more and more, constitute the materials from which new theories are formulated or by which old theories are checked. Therefore, inductive processes in these fields are based to an increasing extent upon statistical results. Statistical methods are essential tools. It cannot be too strongly emphasized, however, that the statistical is only one method of attack. It must be employed in conjunction with other methods to yield its best re-

sults. Careful case studies often reveal the variable factors in a problem and indicate the kind of classification needed in assembling mass data. The historical method must furnish a background for quantitative description by recognizing and describing non-quantitative aspects without which the statistical analysis is meaningless.

In a discussion of measurement in Economics,[1] Professor Mills has carefully set forth the nature and limitations of the contribution which statistical methods may be expected to make. Because of individual variations knowledge of individual cases is of little scientific value even if this information can be obtained. We must deal with phenomena in the mass. The relative importance of induction and deduction varies in different scientific fields. Where variation is wide and causes are many, deduction is more limited and the direct study of facts, assembled and classified, must play a more important rôle in scientific investigation. This is the situation in economics and social science.

Since much quantitative investigation is from selected samples of a larger universe, and since conclusions hold only with a degree of probability, it is a

[1] Mills, F. C.—"On Measurement in Economics," in *The Trend of Economics,* edited by Tugwell, R. G., New York, 1924. The reader will find the following references most valuable: Moore, H. L., *Laws of Wages,* "Introduction," New York, 1911; Merz, J. T., *On the Statistical View of Nature, A History of European Thought in the Nineteenth Century,* 2nd unaltered edition, Vol. II, Chap. 12, London, 1912; Mitchell, W. C., "Quantitative Analysis in Economic Theory," *American Economic Review,* March, 1925; Persons, W. M., "Statistics and Economic Theory," *Review of Economic Statistics,* Harvard Committee on Economic Research, Vol. VII, 1925, pp. 179-97.

fundamental part of scientific procedure to test the stability of statistical measures under varied conditions. It is not enough merely to increase the number of cases, or to estimate the probability of the conclusions by ordinary mathematical methods. Piling up of quantitative evidence is not necessarily conclusive. Since statistical method describes the data and presents the results in the precise form of equations and coefficients, a false impression of absolute accuracy may be conveyed which misleads even the investigator himself. There is grave danger that absorption in the technique itself may blind the investigator to unsound assumptions and limitations inherent in the data. Facts fall into significant order under the control of speculative reasoning. What facts seem to indicate must be tested by their consistency with *a priori* considerations as well as by the stability of results.

However, the facts themselves are persistent stimuli to the creative imagination of the investigator, urging him to find an inclusive formula of explanation. Darwin assembled facts with marvelous patience for many years. Only after prolonged study and careful classification did he arrive at his illuminating generalizations. He was unwilling to publish his conclusions until he had tested them by every means he knew. Generalizations, as in the case of inventions, may be the outcome of the labor of many workers who have derived limited conclusions, tentative statements, empirical formulæ. The immediate aim of research in the social sciences should be to reach these limited generalizations which relate to specific groups and to specific conditions.

Sampling

Extension and improvement of statistical compilations is of first importance. In the effort to accomplish this sound procedures in sampling are essential. Measures of central tendency, dispersion and relationship are frequently obtained from samples and are applied to more cases than were included in the sample. Generalizations include cases not actually investigated. This raises the question as to the justification of generalizing from limited data. The validity of this procedure depends upon the stability of the results when applied beyond the sample under investigation. An assumption is made about the universe from which the sample is taken, sometimes described as "the uniformity of nature, the stability of large numbers, or the regularity of averages." A commonly recognized requirement in sampling is random selection of cases from the larger group. The fundamental principle in random selection is to proceed in such a manner as to give every factor and case in the universe of events a fair opportunity to be represented in the sample. This requires an intimate acquaintance with the field of selection and logical groupings and subgroupings of the probably significant factors. Since the number of factors is large in social investigations and the variability of individual items is wide, adequate classifications and the size of samples are of particular importance in collecting original data.

The investigator may conclude that his sample is adequate when successive samples exhibit little variation, but all the samples may have been vitiated by

biased selection in the same manner. For example, in investigating cost of living, family budgets are collected and analyzed. Under the usual conditions of collecting the data those housewives are selected who are able and willing to furnish the detailed information. Thus, the intelligence and thrift of the housewife enter as a bias which tends to be repeated in successive samples. If it were merely the ignorance of the required facts which causes inaccurate reporting of quantities and prices the errors would probably compensate each other and the averages of a fairly large sample would be very near those of the entire universe from which the sample has been selected.

In compiling index numbers [1] of prices sampling is necessary. In a general purpose wholesale index of commodity prices designed to measure changes in purchasing power, such as that of the Bureau of Labor Statistics, all commodities cannot be included. The prices of various commodities behave differently. Therefore, they must be grouped in significant classes. Within any group all commodities are not available. The greater the variations within the group the larger the number of quotations which will be required to represent it adequately. The prices of the first or the fifteenth of the month are taken to represent a given month. The Bureau of Labor Statistics has just revised its wholesale commodity index to include more quotations, in order to represent more adequately certain groups of commodities, as agricultural machinery, and

[1] For a recent discussion of experience in compiling index numbers refer to Proceedings of the Eighty-ninth Annual Meeting of the American Statistical Association, issued with the *Journal of the American Statistical Association,* March, 1928.

automobiles and tires. The former group of "clothing materials" has been superseded by two groups—"hides and leather products" and "textile products." [1]

But it is maintained that even this index does not represent adequately the general field of price operations and credit transactions. Carl Snyder's index for measuring changes in the general price level has a dozen series in the composite, each of which is made up from samples. These series include, among others, retail prices of food, urban rents, realty values, security prices, wages, machinery prices, and prices of motor cars. A glance at any one of these groups will reveal problems of sampling in selecting representative quotations. The Bureau of Labor Statistics collects retail prices monthly for twice as many food items as it did ten years ago. They are secured in retail stores, in about fifty cities, in a field where standardization is much more difficult than in the wholesale field. How shall we make an index of wage changes representative of the wide variations which are found in various groups of wage-earners in different employments, working under varying conditions of wage payment and of employment? This is a difficult task of sampling for a single industry but much more difficult for industry in general. All price indexes are approximations, but one main factor in their improvement is the securing of more adequate price data, better representing the significant groups.

Changes in employment may be measured by payroll statistics from business establishments. The ear-

[1] "Revised Index Numbers of Wholesale Prices, 1923 to July, 1927." U. S. Bureau of Labor Statistics, *Bulletin 453*.

liest *current* collection of such data in the United States was made by the New York State Department of Labor. The impetus for their collection came during the depression of 1914-15. A special committee in New York City directed an inquiry to over 2000 employers in 1914, asking for the number of persons on their payrolls for the week ending December 19, 1914, and for the same information for the corresponding week in 1913. Shortly afterward the New York State Labor Department began to collect monthly payroll statistics from employers in manufacturing industries throughout the state. A sample of about 1500 establishments was compiled to represent the manufacturing industry as a whole in the state.[1] The facts are currently published each month in the *Industrial Bulletin.* Their reliability for all manufacturing depends upon the representativeness of the sample.[2] The other side of the picture, the number unemployed, has been shown in some states by the monthly records of trade unions. But is the percentage unemployed each month among trade union members typical of general industrial unemployment? This is a problem of sampling. One would not seek information as to unemployment from casual inquiry on the street nor from those only who have been laid off by employers.

The securing of a representative sample is largely a problem of logical classification. We may not be able,

[1] *Special Bulletin 85,* July, 1917, Department of Labor, State of New York, Appendix, pp. 37-43, gives description of procedure in obtaining representative data.

[2] Hurlin, Ralph G., and Berridge, William A. *Employment Statistics for the United States.* New York, 1926. This book gives an excellent description of the collection and uses of employment statistics.

or it may not be necessary, to enumerate the entire universe, but we can describe it as to the characteristics which vary and constitute possible factors in the situation. This involves classification of the universe into groups. The total sample can then be distributed to these groups in the proper proportion.[1] *Research in the social sciences should include experimentation with samples of different size and composition in specific fields of investigation.*

[1] Other examples of sampling may be cited:

(a) Douglas, Paul H., "An Examination of the Wage Studies of the National Industrial Conference Board," *Quarterly Publication of the American Statistical Association,* Sept. 1921. This is a critical examination of the Board's Research Reports 20 and 31, on wage changes during and since the war. Professor Douglas criticizes the samples of wage earners from the point of view of their size, their geographic distribution for different industries, their inclusion of a disproportionate number of non-union employees, and the methods of collecting the original wage data.

(b) Young, Allyn A., "Aged Poor in Massachusetts," *Quarterly Journal of Economics,* May, 1926. The purpose of this investigation was to determine the condition of that portion of the population over 65 years of age, not cared for by established institutions. The total in this group was estimated and a sample of about ten per cent of this total was investigated. The sample was well distributed geographically over the state, in cities and towns representing the different kinds of community composition. Conclusions were drawn for the entire group from these samples.

(c) Hilton, John, "Enquiry by Samples: An Experiment and Its Results," *Journal of the Royal Statistical Society,* July, 1924. The experiment was in the field of unemployment and consisted in taking samples of different sizes and in comparing the accuracy of the results. With this article by Hilton will be found a valuable discussion of the experiment by four leading statisticians of England, Edgeworth, Bowley, Yule and Greenwood. Mr. Hilton has continued his experiments in this field. Some of his more recent results are presented in the same publication, Part IV, 1928.

Group Research

Professor Allyn A. Young, in discussing economic research, states it as his opinion that the emphasis should be placed upon the investigator rather than upon the problem.[1] If group work is undertaken, the emphasis should be placed upon a group of related problems which will have unity and upon which the investigators are working from choice, not upon a comprehensive program into which the individual investigator must fit. With this point of view we heartily concur.

In the application of statistical methods especially it is desirable to contrast this idea of group research with what may be termed organized or directed research. Statistical procedures are laborious and slow. The assembling of data, the arrangement in significant groupings, the analysis and the interpretation of results all consume a great amount of time and energy. The strong temptation in statistical inquiries is to organize the procedures in some sort of hierarchy of supposed importance, under direction. The purpose is usually to relieve those who interpret the results from the drudgery of the antecedent operations as much as possible. *It should be strongly emphasized that there is no substitute for first hand and intimate knowledge of the materials at every stage, from raw materials through refinement and analysis.* New relations are suggested, the hypotheses are recast, the inadequacy of classifications is detected, the limitations of the data

[1] Young, A. A. "Economics as a Field of Research," *Quarterly Journal of Economics,* November, 1927.

are clearly recognized, provided only the active, curious and coördinating mind of the investigator has a chance to react to the materials before they are cast in too rigid form of analytical procedures. The routine of organized statistical research may produce only a routine product. There is danger that technique may take the place of ideas. The result will likely be only fact gathering and description, a sort of factory process. Statistical methods should serve as tools for shaping answers to specific questions.

Measurement in the Social Sciences

Statistical data consist of countings, measurements or estimates. Many scientific writers will not concede the possibility of scientific analysis without measurement. "When you cannot measure what you are speaking about, when you cannot express it in numbers," said Lord Kelvin, "your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the stage of a science, whatever the matter may be." Without attempting to decide this question of whether quantitative data are required in scientific analysis, it will be of value to emphasize the difference between direct and indirect measurements. In direct measurements the characteristic of the object is compared directly with that of the measuring instrument, as length of a room and of a yard stick, volume of wheat and of a bushel measure. In indirect measurement we cannot make direct comparison between the quality we wish to measure and the measuring instru-

ment. What we really measure is some external manifestation of the quality which is capable of being expressed in quantitative form. Thus the thermometer measures degrees of heat by reason of the fact that substances expand under its influence. It is really the degree of expansion which is registered on the instrument. This is assumed to be in proportion to the heat applied to the mercury.

In the social sciences indirect measurements are more often the only kind available. The object or quality cannot be observed directly, and its presence or its degree must be inferred, if measured at all, from some external evidence which can be counted or measured. Examples will readily occur to you. We attempt to measure family standards of living or family welfare by some amount of money expenditures, yet very different satisfactions are actually obtained by the expenditure of a given amount by different families. Changes in welfare are supposed to be reflected by index numbers of wages and of cost of living. We measure the amount of poverty by counting the numbers who apply for relief; respect for law is indicated by crime ratios; intelligence is quantitatively described by the results of certain performance tests.

Errors in these indirect measurements may arise from our inability to define how closely the objective evidence, which we can count or measure, is associated with the quality itself in which we are interested. This relation may vary according to circumstances of time and place. The danger is that we will combine by mathematical processes indirect measurements that are not comparable. Counting assumes similar units which can

be added. Sociologists ask whether respect for law is increasing or diminishing. Some seek an answer by counting arrests or convictions for infractions of law. Do these really reflect the social fact under investigation? It may be the objective fact we count or measure moves in one direction over a period of time while the social fact inferred from the objective evidence is actually changing in the opposite direction. For example, welfare is a psychic phenomenon affected by changing ideals and habits, as well as by income and expenditure. It is a question how accurately we can reflect changes in welfare by family budgets and real wages. These illustrations indicate some special limitations of the statistical method in the social sciences. The doubts which we have cast upon indirect measurements should not discourage the application of statistical methods, but should emphasize the need for caution in planning investigations and interpreting results.

Measurement in Health Work

Health is a composite result of many factors. It cannot be measured directly. It constitutes a good illustration of the kind of measurement discussed in the preceding paragraphs. Mortality rates and the lengthening of the average life span—expectation of life—as revealed in life tables, are general indications of progress in human conservation. Much more specific information is needed to describe health conditions during this increasing length of life. Is it merely taking longer to die or is there an increasing freedom from illness and disability during a longer life? Elab-

orate social programs and large expenditures have for their objective the improvement of health. It is desirable to measure the efficiency of these programs and of the methods employed. The mere "putting over" of a program is not the final test of success. What is the ultimate result—the prevention of a specific disease, the lessening of sickness and death from specific and related causes? This is an analytical problem of taking stock of the causal factors. To some extent, the use of quantitative methods of testing results is involved. In the field of industrial accidents rapid progress has been made in analysis of causes and in measurement of results of preventive measures, as shown, for example, in the steel industry.[1]

The movement for discovering defects among school children by medical inspection is widespread. This movement has been given added impetus by the discovery of so many defects among men drafted for service in the World War. For a long period of years and for a large part of each year school children are potentially under constant observation by teachers, nurses and specialists in health work. More frequent and complete records are made of their health than of that of any other population group. The objectives and methods of school hygiene are quite specific. What objective indices may be regarded as essential to any measurement of health work in this field?

We are accustomed to speak of school hygiene as a whole, but is it possible to measure results in terms of

[1] U. S. Bureau of Labor Statistics, *Bulletin 298*, "Causes and Prevention of Accidents in the Iron and Steel Industry, 1910-1919," published 1922.

any single index? The gross mortality rate is not adequate. The weight of the child—due consideration being given to the sex, age, height and sometimes to the race and build—is the most commonly used index of health. But weight is so variable among normal and healthy children that it is not a very sensitive general index of the health of a particular child. For group purposes, it is useful within reasonable limits to measure improvement in health. For some purposes a better index is probably what we connote by the term "nutrition." But nutrition is itself a composite term and the estimate of degree of nutrition must be based on specific signs. Estimates of different physicians as to the nutrition of the same child tend to vary. To make these signs specific and objective is a problem for careful study. The sickness record during school sessions is a practicable index of health, if the causes are recorded in some detail.

It is clear that the records of school health are largely indirect measurements, and that further standardization of diagnosis, greater uniformity of observation, and continuity in standards are required before we can scientifically evaluate the effect of specific activities for the prevention of many defective conditions. It is not only a question of classification of defects, but a question of how these classifications are used which determines the comparability of the statistical data. Comparatively little effort has been made in American cities to refine diagnostic standards.[1]

[1] "The Measurement of Public Health Work," by Sydenstricker, Edgar, *Annual Report of the Milbank Memorial Fund,* 1926. This is a noteworthy document on scientific method.

Measurement in the health field affords a good example of a more general principle in our assembling of materials for statistical research. Measurement and the methods by which it is to be done are an intimate part of the activities themselves. They are the basis of inductive reasoning and of scientific procedure. Only if we plan for these measurements shall we have the basic data for adequate description. Notwithstanding the rapid accumulation of quantitative data in recent years, there is grave danger that progress in the statistical technique of analysis will outstrip the perfecting of methods for securing the required original facts. Much of our statistical data are assembled as by-products of government or private activities. *Those of us interested in statistical research must attempt to influence the kind of basic data recorded. To do this research organizations and individuals must be either connected officially with government and private activities or they must be intimately associated with such activities and be trusted by them.*

During 1927, under the auspices of the Institute of Economics, a study was completed and published, on *Workers' Health and Safety: A Statistical Program.*[1] Another study is in progress of a similar character on wage statistics. The author points out the need of statistics of industrial safety and health for specific purposes, analyzing the problems to be solved. He then appraises the existing statistics in these fields, indicating the gaps, and finally formulates a program for assembling the facts needed and for using them in

[1] Woodbury, Robert M. *Workers' Health and Safety: A Statistical Program.* Macmillan, 1927.

prevention and in alleviation of conditions. The discussion is limited to governmental statistics in these fields. This study by Dr. Woodbury illustrates perfectly the argument made in the preceding paragraph. It emphasizes the principle stated earlier in this paper that statistical inquiries must fit into a rational scheme of things, which is developed by alternating use of induction and deduction.

The same author, while a member of the staff of the Children's Bureau, was responsible for preparing the publication of that Bureau, "Causal Factors in Infant Mortality" (No. 142). This study illustrates further the point of view expressed above. In this inquiry a government bureau set out to collect the data considered necessary in order to throw light upon the causation of infant mortality.

Rational Test of Statistical Analysis

In discussing the contributions of statistics to the study of the business cycle, Professor Mitchell points out that statisticians in this field often neglect current theories of explanation. It is his conviction that "statistical analysis affords the surest means of determining the relations among and the relative importance of the numerous factors stressed by business cycle theories. *In turn, rational hypotheses are the best guides of statistical research, and theoretical significance is the ultimate test of statistical results*" [1] (italics mine).

[1] Mitchell, Wesley C. *Business Cycles, The Problem and Its Setting,* Chapter III, National Bureau of Economic Research, New York, 1927. This chapter is a most comprehensive and useful resumé of the statistical methods used in description and analysis of time series.

In this view rationalization must have the last word, and those inductive conclusions only for which non-mathematical explanations can be found will really stand the test. This view accords with our earlier statement that induction and deduction must go hand in hand, each furnishing an impetus to the other. In fact, the application of statistical methods is often halting and ineffective because the basic data were collected under the stimulus of practical activities rather than of scientific inquiries. Statistical analysis is expected to furnish answers to queries which it had no part in formulating. The investigator is often compelled to adapt his problem to such data as he has, when he really wishes to formulate his problem and then adapt the data to the problem.

The transition from speculative methods to methods based upon more exact and systematic observation has often been stimulated by the conflict of the theories themselves, and by the desire of rival theorists to obtain support for their particular ideas in objective and valid form.

The difficulty of rationalizing the results of statistical analysis is illustrated by the work on determination of secular trends in time series, by the mathematical "growth curves" describing population increase or growth in the production of specific commodities. In the first place, the significance of particular trends fitted to the data has not received the same attention as that of cycles. The investigator of cycles measures trends with the object usually of getting rid of them, not of explaining their significance, their characteristics,

similarities and differences. He is content to reduce them to horizontal lines.

The lines of secular trends exhibit the effects of causes which "have influenced an economic process in some regular, or regularly changing way, through periods of time long in comparison with business cycles." Curves are fitted to the data by empirical methods to describe these long-time movements. There is no single criterion for deciding as to "best fit." It is largely a matter of judgment and must be decided with reference to the character of each series and the uses made of the results, whether for description of past experience primarily or for prediction of future movements. Is this empirical curve fitting a discovery or is it merely the mathematical expression of an assumption? Does the Pearl-Reed curve represent a law of population growth —a discovery as to the nature of the phenomenon— or is it merely a good empirical description of past experience which has shown remarkable adaptations to many different population universes?

It is at this point that rationalization must enter. Professor Mitchell points out that this field "requires the fusion of statistical technique with historical learning and theoretical finesse." A rational explanation of the mathematical description of past experience is especially important since trends are projected forward for longer or shorter periods to forecast future events. What do these empirical curves signify? Are we prepared to accept their implications as characterizing the social and economic processes represented by the data? It is necessary to form hypotheses concerning long-time movements in population or production. These

hypotheses are intimately connected with causal explanations. If we can choose curves to describe the data which, in their mathematical implications, are in accord with our causal explanations, then by test and experiment we may be able to throw light upon the character of the processes represented by the data.

Analysis of possible causes for secular trends reveals not a single cause peculiar to each series but some combination of interrelated causes, such as causes affecting the number, age, health, education, technical equipment of the population, and those related to the quantity and quality of natural resources. A complex of fundamental factors condition economic activities and changes from time to time. Some causes affect many activities in much the same manner and produce similarities in trends. Through careful classification of factors and through analysis of quantitative data describing them, the likenesses and differences in trends may be discovered.

At this point should be recognized a supplementary method of attack. It should be emphasized in all scientific inquiry that the statistical method is only one of several methods of approach and that it has distinct limitations. "The most valuable contributions toward an understanding of the trends empirically established by statisticians have been made by the economic historians," says Mitchell. The historian needs some statistical technique in order to use the quantitative data to the best advantage. He describes great movements, as the Industrial Revolution, the development of capital and natural resources, the movements of peoples and their causes. The volume "Business

Annals," published by the National Bureau of Economic Research, illustrates a type of historical research supplementary to the statistical analysis of cycles.

The Basis of Forecasting[1]

When the Statistical Society of London was organized in 1834, five years before our own national society was founded in Boston, the announcement stated that its functions were to "procure, arrange and publish facts calculated to illustrate the condition and *prospects* of society." Evaluation of "the prospects of society" was recognized at that time as a proper object of statistical research. Long before this time the principles of probability had been applied to mortality experience and the inference drawn as to the probable length of life.

Statistical methods including correlation and curve fitting are descriptive, as J. M. Keynes has emphasized in his discussion of probability. Statistical measures are not arguments, but they may be used as the basis for inference and forecasting. The investigator has a belief in the continuity and orderliness of affairs. He describes past experience as accurately as possible and projects this experience forward as inference. The accuracy of his prediction depends upon a knowledge of the various factors operating in the past and upon that of new factors entering to modify the future. It is important that the period examined in the past be

[1] *The Problem of Business Forecasting,* edited by Persons, Foster and Hettinger, Pollak Foundation Publications, Boston, 1924. Especially Chapter I, written by Warren M. Persons.

long enough to test the stability of statistical results and that these results agree with, or can be set in the framework of, related knowledge of a non-statistical character.

If the investigator uses a "growth curve" to describe a trend of production in the past and projects it forward by inference, the mathematical description must be rationalized in order to give confidence in the prediction. For example, R. B. Prescott has used the Gompertz equation to describe growth of production in certain industries.[1] As a rational explanation of this curve, he suggests the theory that industries whose growth depends directly or indirectly upon the ability of the people to consume their products pass through similar phases in the course of their development, as follows:

1. Period of experimentation.
2. Period of growth into the social fabric.
3. Growth reaches a point where it increases at a decreasing rate.
4. Period of stability.

It follows that there are many time series to which the idea of growth or decline does not apply, as prices, interest rates, marriage rates.

Of a similar kind is the "logistic curve" used by Pearl and Reed to describe population growth.[2] Their researches raise the question whether there is a biolog-

[1] "Law of Growth in Forecasting Demand," *Journal of the American Statistical Association,* December, 1922.

[2] Pearl, R., and Reed, L. J. *Predicted Growth of Population of New York and Its Environs,* 1923. Also Pearl's publications: *Studies in Human Biology,* 1924; *The Biology of Population Growth,* 1925; *The Biology of Death,* 1922.

ical law of population growth, upon which there is great difference of opinion.[1] In this situation the important consideration is to be able to rationalize the mathematical description, in some such terms as Prescott has suggested for the Gompertz curve, in order to increase confidence in its predictive value.

In his presidential address before the American Statistical Association, in December, 1927, Edmund E. Day discussed this problem of forecasting [2] from three points of view: prediction by analogy, by formula, and by analysis. The first need not detain us and the second we have already discussed. The latter is a mathematical procedure of extrapolation. Variables of certain types seem to offer favorable conditions for this method of forecasting. But there is no single "law of growth" formula. There is the difficulty of "goodness of fit" and of errors in the data, which leave a wide range of variation within which predictions may fluctuate. An adequate rational basis for the formula must be found, and probably no single factor can be made the basis of forecasting economic and social events.

These considerations lead Day logically to a discussion of analytical methods of forecasting. Here the philosophy and logic is fundamental. Formulæ are not excluded, but they must be presumptively reasonable. *The sound basis of prediction, if there is one, lies in careful analysis of factors and adequate quantitative description of their separate behavior.* Non-quantitative factors are admitted to influence the result. Infer-

[1] Wolfe, A. B. "Is There a Biological Law of Human Population Growth?" *Quarterly Journal of Economics,* August, 1927.

[2] "The Rôle of Statistics in Business Forecasting." *Journal of the American Statistical Association,* March, 1928.

ences are only approximations within limits of error which are judged consistent with the facts both quantitative and non-quantitative. Theory of population growth goes hand in hand with quantitative description of the facts. The emphasis is placed upon the original data and better analysis, not alone upon the use of more refined statistical technique. Analysis involves finding the significant factors and understanding their behavior.

Analytical Methods of Forecasting Population

No better example of this type of forecasting can be cited than rational methods of predicting future population changes, now in use by government and private organizations. Rational methods are analytical methods, since they are based upon resolving growth into its various components. Population growth or decline is not a simple phenomenon. It is a resultant of factors which are interrelated. Past growth, whatever the cultural position of the area may be, is a resultant of births, deaths, immigration and emigration. The population may be in the pastoral, agricultural or industrial stage of culture; it may be a new civilization in an area of seemingly unlimited natural resources, or a decadent people in a worn out land; it may be feeling the pressure of the limit of utilizable resources or it may be entering a new era of social evolution—yet its growth can be completely represented in terms of the four factors mentioned. Every change in economic opportunity, every advance of science and medicine, every variation of social custom and practice can

be related to population growth only as it affects the rate of births, or of deaths, or of migrations.

Starting with this basic idea, the analytical methods used by a large public utility company for estimating population growth for two or three decades in the future will be indicated in outline.[1] First, an analysis is made of the four growth elements in past decades, using the same time unit as the Federal Census Bureau, approximately ten years. Births are studied in terms of the number of children born during a ten-year period who live to be enumerated at the end of that period. They are studied in terms of nativity groups, and according to color. Comparisons between the number of these children under ten years of age and the number of married women of the various nativities, between the ages of 15 and 45, lead to the estimate of a series of birth rates which have apparently been operative in the past, for a unit of time covering a decade.

Deaths are likewise analyzed for past decades according to age, sex, color and nativity groups. Death rates for each of these groups are estimated, after a detailed study of life tables and all available checking data.

Generally the result of migrations in the past can be observed only as a net amount. Little information exists over long periods of time as to the actual size of the movement into an area and the movement out of it. However, it is the net change that is important in population growth. The analytical method studies

[1] Olney, Helen. *Population Estimating,* Essay submitted at Columbia University, 1928, by candidate for degree of Master of Arts in the Faculty of Political Science.

past "apparent migrations" also by nativity, sex and age groups, by taking the difference between the actual number enumerated by the census in each of these groups and the numbers who would have survived from the preceding count if the average decade death rate for that group had been operative.

Having analyzed these population changes by groups in the past for as long a period as practicable, the next step is to estimate future trends. The trend of the decade death rates of each group of the population is projected into the future for ten, twenty and even thirty years. This projection, guided by the past changes in the rates, depends in last analysis on the judgment of the estimator. At this point the expected effects of improved sanitary conditions, advancement in medical science, and the development of public health are taken into account. Tables are drawn up showing the numbers of the population, at the last census count, 1920, in each of the age groups: 0–9, 10–19, 20–29, 30–39, 40–49, 50–59, 60–69, 70 and over, and for each sex and for each nativity. To each of these groups is applied the appropriate decade death rate and the number of survivors in 1930 is obtained for each group, beginning with the age 10–19, since those 0–9 in 1920 will have advanced to the group 10–19 by 1930.

In similar manner the trend of past births is projected into the future, each group of married females being considered separately, and further subdivided into age groups. In this connection the past trends of marriage rates by groups are studied and estimates applicable to the future are made. Here also the judg-

ment of the estimator plays an important part. He must put into numerical form his expectation of the proportion of women in each of the groups who are married. Among factors which he must consider are the increasing economic independence of woman, the decreasing mortality in the middle ages of life, the trend of the divorce ratio, and the increasing urbanization of the population. Having estimated future marriage rates, changes in decade birth rates form a separate problem. The expected effect of changing social ideas, variations in the standard of living and in the degree of urbanization—these and other factors enter into the final estimate of the birth rates which will apply in the coming decade.

Since these decade birth rates are in terms of the number of children born during a decade and surviving to the end of the decade, the application of the rates to the estimated average number of married females in the proper age-groups results directly in the probable number who will be in the first age-group, 0–9, at the next census count, 1930. A complete estimate is thus secured of the most probable population in the given area ten years after the last census, in 1930, if the growth were expected to result entirely from natural increase.

This method of obtaining the natural increase, called the method of "age-group analysis," is applicable to any area for which population data in ten-year age-groups are given for several past dates. For the entire nation, for states or groups of states, and for the larger cities of the country the method has been used.

The next step in the procedure requires the estimate of the net gain or loss due to migration. This necessitates special treatment for areas of different size. In the case of states and cities no record of migrants has been kept. The basis for estimating movements into smaller areas than the country as a whole is found in elaborate studies of the attractions which draw men into some communities and out of others. A circular of the company states that "studies of natural and practical economic conditions in various sections of the country, of the past history, trends and prospects of basic industries, and of the development of the transportation systems will provide the best possible basis for analyzing the probable future causes of migration." The various population-building attractions of a community are listed as follows:

1. The development of tributary territory.
2. Industrial expansion.
3. Attraction as a home center.
4. Governmental activities.
5. Institutional activities.

Great emphasis is placed upon the fact that no community should be considered alone in estimating the future drawing power. It should be considered in relation to other communities and also in relation to the probable future growth of the United States. This company is making these detailed economic studies. Its interests are country-wide and such studies are entirely practical. Studies of individual industries, their probable location, and their labor requirements are included.

In this manner the 1930 population estimates are completed in the subdivisions in which the 1920 census figures were used. The entire procedure is repeated to obtain estimates for 1940; and upon these the estimates for 1950 are based.

This method of estimating population growth has been sketched rapidly to illustrate the type of forecasting which seems to us most promising.[1] It would appear that the method of analysis is the most logical and the soundest basis upon which to predict future events. It yields results which can be readily checked with conditions as they change. It yields a knowledge of the factors which operate as causal influences. It places the investigator in a position to estimate probable changes in past trends.

Summary

The statistical method is only one way of attacking problems. Best results are usually obtained when it is used in conjunction with other methods. Statistical inference and prediction depend for validity upon a sufficiently wide basis of experience. There is grave danger that progress in statistical technique of analysis and description will outstrip the perfecting of methods for obtaining more complete and reliable original data. Deductive and inductive processes go hand in hand in scientific investigation. In statistical induction the theory and practice of sampling is of first importance.

[1] Whelpton, P. K., "Population of the United States, 1925 to 1975," *The American Journal of Sociology*, Sept., 1928. This article describes a similar method of forecasting population.

Statistical research must be directed by rational hypotheses. The final test of statistical analysis is a rational one. Statistical method should not be expected to furnish answers to questions which it has had no part in formulating. The sound basis of forecasting is an analysis of experience, and when formulæ are used for prediction the important consideration is that they can be rationalized.

PSYCHOLOGY

By

ROBERT SESSIONS WOODWORTH

PSYCHOLOGY

In the broad field of biological science, which may be taken as including all the phenomena of living creatures, psychology occupies a central position, lying between physiology on one side and the social sciences on the other. Physiology seeks to analyze the activities of the individual organism into activities of organs and cells, organ physiology describing the actions of the several organs composing the organism, and cellular physiology the activities of the constituent cells. On the other hand, sociology examines the activities of groups, which, though composed of co-acting and interacting individuals, may profitably be viewed as units. Sociology does not feel called upon to examine the cells and organs of which the individual is composed, nor even the separate individuals of which the group is composed, since it finds plenty to do in examining the action of the group as a whole, and the interaction of different groups. Now psychology takes as its object of study the individual. The individual is indeed made up of organs and cells, and psychology must not forget that fact; the individual is member of a group or groups, and that fact also must be borne in mind in studying the individual; but it is the individual as a unit, and the activities of this unit, that constitute the field and the problem of psychology.

To an enthusiastic psychologist, it may appear that

sociology, in freeing itself from abstractions and getting down to a real scientific basis, will be forced to resolve itself into a branch of psychology. Since the group is composed of individuals, plus various inanimate objects with which the group carries on its activities, group behavior consists entirely of individual behavior. Individuals are the only real actors, and the notion of group activity is therefore fallacious. In a similar vein, I have heard enthusiastic physiologists insist that, since the organism is composed of organs and cells, psychology must finally abdicate in favor of a complete physiology. Further, the activities of cells, from the physico-chemical point of view, are "really" molecular motions, while molecular motions are really atomic motions, and these themselves motions of electrons and protons. All of which may be perfectly true. I don't doubt it in the least. But however true it is, the fact remains that each of the sciences mentioned finds plenty of work to do in assembling and digesting data of its own preferred kind, and that these data would be lost to view if each science were in turn resolved into the one next below it. The psychologist, with his eyes focussed on the individual, cannot see the behavior of the group; the physiologist, analyzing the individual into organs and these into cells, loses sight of the behavior of the organism as a whole; and so on.

I like to think that the "parallelism," of which we used to hear so much, is not a parallelism of different streams of events or processes, the physiological process running parallel with the mental process, for example, but a parallelism between different sciences. Two or more sciences may see the same series of events

from different points of view, and describe the same process in different terms. The difference in point of view, as between sociology, psychology and physiology, amounts to a difference in the size of the object whose behavior they are describing. The same process, going on in the world, may be described as the activity of groups, of individuals, of organs, of cells. A football game can be described in terms of what each team did, or of what each individual did, or (conceivably) of the action of the organs and cells of each of the players. The usual account of a game is a mixture, with the movements of the teams given the most attention, but with frequent reference to individuals, and occasional reference to organs or parts of the individuals (usually when injured). The important point is that a description limited strictly to the actions of organs, or even of individuals, would fail to give a real picture of the progress of the game. The reader cannot follow the game from the story of individuals, unless each individual is defined and kept in mind as a member of his team. Just as a sheath of detailed maps would fail to show the general shape of a country, so the more minute sciences, alone, would miss the relationships which come into view when the more inclusive objects, such as individuals and groups, are subjected to examination.

The effect of this notion of "levels of description" is to recognize the independent sovereignty of each science. True scientific character can be attained in psychology without reducing psychology to physiology, and in sociology without reducing it to psychology. The primary task of each science is to develop methods

enabling it to reach scientific description within its own level.

But while each science has a certain independence, it does not follow that each should adopt a policy of isolation. On the contrary, all science is an interrelated system, and great enlightenment often results from cultivating the borderland between adjacent fields, or, we may put it, from bringing together and interrelating adjacent levels of description. The same series of events in the life and behavior of the organism can be described either physiologically or psychologically; and it is then illuminating to correlate these two different descriptions of the same process. Each description illuminates the other. If we start with the broader description of the process, and pass thence to the more minute and analytical, the latter reveals the mechanism or inner workings of the process at first only broadly conceived. If we take our start from the more minute description, the broader subsequent description reveals the significance of what was first observed. If, for example, we begin with the fact that a person reads a newspaper paragraph, and then record the series of little eye movements occurring as the eye moves along the line and from one line to another, we see something of the mechanism by which reading is done. If, on the other hand, we start with a minute study of eye movements of different sorts, and then discover that a certain kind of eye movement occurs in reading, we see something of the significance of this eye movement in the behavior of the individual.

It is obviously necessary for each level of description to take account of the environment of the object

observed; and especially is this true when the environment is itself highly organized. The physiologist, in studying the behavior of a particular organ, necessarily bears in mind to what organism this organ belongs, and how the behavior of this organ is affected by other organs. The psychologist, similarly, needs to take into account the relations of the individual to other individuals and to the organization, formal and informal, of the social group. Psychology looks to the social sciences for information on the social environment, so important in describing the behavior of the individual. Thus in many ways the sciences are closely interrelated, while still, in the division of the immense labor of scientific description, each science has its own task, and needs to develop its own appropriate methods.

Now in regard to this matter of method, psychology has for centuries regarded itself as an empirical or inductive science, seeking general conclusions based upon observed fact. Yet it can hardly be said to have become truly a science till along in the nineteenth century, because it did not earlier realize its bitter need of new facts, recorded facts, precise facts, facts required to check up definite hypotheses. It long depended upon general impressions left by past experience, rather than on observations made for the specific purpose of furnishing the answer to questions of scientific interest. But about the middle of the nineteenth century psychology began to borrow techniques and standards of work from the physiological laboratory, and attempted to take its place as a natural science. The task of making psychology scientific has not

been an easy one, and is by no means, even yet, a task completed. Many have been the loyal workers, from decade to decade, who have assisted to raise standards, and to show the feasibility of extending the natural-science approach to an ever wider range of problems.

When the psychologist speaks of method, he has in mind types of observation that he depends on to give him his data, and also ways of planning out a series of observations so as to furnish the answer to the question under investigation. We may speak of the tactics and the strategy of psychological investigation. Military science distinguishes between tactics and strategy in a way that furnishes a useful analogy. Under tactics is included the detailed handling of relatively small bodies of men, squads, companies, regiments, with the object of moving them smoothly and expeditiously to any desired position. Strategy, assuming the tactical efficiency of the several units in an army, plans out their movements so as to accomplish, if possible, the objectives of a campaign. By analogy, tactics in psychology would cover the ways and means of making good observations, and strategy the types of campaign that can be arranged in the attack upon a problem. Though it has been the tactics rather than the strategy of psychology that has been the subject of discussion and controversy, we had best confine our attention today mostly to the strategy, after a slight sketch of the tactical methods, or methods of observation.

Since, according to our definition, psychology is to study the activities of the individual or organism as a whole, the thing observed is always an individual. It

may be, indeed, that individuals are sometimes observed *en masse,* as in what we call a "group test," but still it is the behavior of the individuals in the assemblage and not of the group as a whole that the psychologist wishes to observe.

Now when the individual under observation is himself a human adult or older child, in whose observations we have confidence, we may ask him to be the observer. He would then observe something of his own doings, something that went on in himself. When this type of observation is attempted, we may speak of self-observation, or perhaps better of subjective observation, though neither term is free from misunderstanding. When the individual is observed by another person, we may speak of objective observation. We thus have one dichotomy of our methods of observation.

Another division is possible. What is observed may be the individual in process of doing something, or it may be what he does, the outcome or product of the process. This cross-division gives four rather distinct methods of observation, each of which is much used.

Subjective observation of process is sometimes called introspection. We wish to secure observations, for example, on the process of thinking out the solution of a problem. Somebody must solve the problem, and it is that individual's process that is to be observed. We ask the said individual, as soon as he has reached the solution of the problem, to review the process and report "what went on in his mind." We ask him what he notes as a fact; we caution him against substituting interpretations for facts, for he is to be our observer,

not our generalizer—we reserve the generalizing function for ourselves as investigators.

Many have been the objectors to this type of observation. Auguste Comte held that it was logically impossible for the subject to observe himself—yet he does seem to do it. Wundt urged that this type of observation, though possible to a degree, was scarcely worthy to be classed as scientific observation, because the observer was not free to devote his whole attention to observing, but must first go through the performance to be observed. Watson, in inaugurating his behaviorism, appeared to reject introspection altogether, on the ground of unreliability, but later he seemed to re-admit this method to a rather dubious standing, under the name of "verbal report." There is no doubt that introspection is a relatively difficult sort of observation, largely because the process to be observed is usually rapid and complex. Yet, in my opinion, a considerable amount of decidedly valuable observation has been obtained by this method, and no question of principle, but only of expediency, is involved in its use.

The other type of subjective observation was borrowed by experimental psychology from physiology. The physiologists had used it in studying the deliverances of the sense organs, and psychology has used it for the same purpose and for the study of feelings, preferences, and esthetics. A stimulus of some known sort is applied to the subject, who is asked to report the sensation, feeling, or other effect made upon him. For example, a red and a blue light are simultaneously thrown upon the same white surface, and the subject is asked to report what color he sees. He reports that

he sees purple. If, instead, a green light is presented and looked at steadily for 15 seconds, and then removed, the subject reports seeing purple again as an after-effect. These and many related facts are built up into a picture of the color sense. There is no special difficulty with this type of observation, and no possible reason for rejecting it; though the behaviorists have, confusedly, looked askance upon it, because the subject makes the observation upon himself, rather than being observed by another. After all, what the subject does here is essentially the same as what he does in observing a color in, let us say, a chemical test, the difference being simply in the use made of the observation—in one case for indicating the presence of some chemical substance in the test tube, and in the other for indicating something regarding the color sense of the subject who observes the color. If this type of observation is ruled out of psychology, it ought, logically, to be ruled out of chemistry as well, and then there would be no chemistry left. It ought also to be ruled out of behavioristic psychology, and then there would be no behavioristic psychology left, since the behaviorist would not trust his own observations, which, taken just by themselves, are observations of the same sort. That is to say, the behaviorist, in making objective observations on the behavior of another individual, gives a verbal report of what he sees, just as the subject does in the color sense experiment. One observation is really as objective as the other, taken just by itself, but we call the observation subjective in the color sense and numerous other experiments, simply because the subject, whose behavior is to be recorded,

is the person who receives the stimulus, and the primary observer of the effect of the stimulus.

The two objective forms of observation in psychology have never been the subject of much theoretical controversy, except that some schools have held them to be merely secondary, the essential observations being necessarily, as they held, subjective. Objective observation of process consists in recording, by a great variety of apparatus, different movements, glandular secretions, electrical effects, etc., occurring in the individual while he is undergoing emotion, or while he is thinking, or during any process which is judged of psychological interest.

Objective observation of the outcome of a process is perhaps the most frequently used of all psychological modes of observation. The subject is set some task to perform, and the success of his performance is gauged in some way. The success of different individuals under the same conditions is used to indicate individual differences, while the success of the same individual under different conditions is used to throw light on the mechanism of the performance.

We come now to the "strategy" of psychological investigation, the planning of research campaigns. Granted that we have a satisfactory technique for making the single observations, we may still lose our campaign for lack of an adequate system for fitting the observations together in an orderly way that will bring an answer to our problem.

The choice between several general styles of attack depends upon the extent to which the investigator can control conditions. If the essential conditions are within

his control, he can, and usually will, adopt the experimental line of attack. When he cannot control, but can follow along, observing a sequence of events as it develops, he uses the genetic method. If the essential conditions have acted before the case came under his observation, he may still attempt a sort of historical or biographical study. Finally, if conditions are so complex and involved as to escape either control or following, he may still have pretty good success by the use of the comparative method, or method of concomitants.

The experimental method seems to psychologists the ideal method, wherever it can be applied. Here the investigator, being able to control all essential conditions, keeps all these conditions constant save for one factor, which he varies systematically, in order to trace the effect of this variation on the subject's performance. The condition or factor which he varies systematically is his "independent variable," while the resulting effect is gauged by means of a dependent variable, which may be some measure of the success of the subject's performance, or some indication of the effect produced upon the subject by the varying factor. A clear instance of the experimental method is afforded by Allport's study of "social facilitation." A certain task was assigned to be performed, in one case while the subject was alone, in another case while other subjects were around him performing the same task, though each was working independently. In certain types of work, the mere presence of co-workers speeded up the subject's performance. Often a great deal of ingenuity is required to secure control of all

the essential conditions, especially of the internal condition of the subject, his attitude and motivation. In many forms of important behavior, the ingenuity of psychologists has not yet sufficed to obtain enough control to permit of an experimental attack, and other methods of attack have perforce been adopted.

The genetic method consists in following through a process of development, and observing it as it proceeds, though the investigator cannot exercise much if any control over the factors he wishes to study. We may follow the growth of a little child's vocabulary from day to day, and relate the extent of his stock of words to his age as definitely as if we had the whole process under control. But if we ask why one child learns to talk at an earlier age than another, we soon realize that there are many factors probably involved—native ability, rate of growth, health and nutrition, conversation heard by the child, encouragement afforded him—some of which we could not control if we would, while others we should hesitate to subject to drastic control, for fear of hampering the child's normal development. We can, in a minor way, make experiments on some of these factors, and so do a little better than simply to follow the uncontrolled development.

The same follow-up method can be applied to the decay of mental functions in old age, alcoholism, or other degenerative processes, and the genesis of an abnormal fear, or of an insane delusion, might be similarly traced. The difficulty here, however, is that we seldom know in advance who is going to develop these interesting conditions. Consequently we do not actually

observe the earlier stages in the abnormal development, but begin our study after the development has already proceeded to a marked stage, and then try to reconstruct the earlier stages from such testimony as we can secure.

The latter procedure is evidently the historical method, which in psychology becomes the biographical method, or, more often, the case-history method—for the use of published biographies has thus far not been specially fruitful for psychology. While the genetic method follows a development forward, observing what is occurring, the case history method traces the process backward as well as possible from such data as can be assembled after the fact. The need of such a procedure, whatever its difficulties, can be readily appreciated. We find individuals who differ from the average in interesting ways—geniuses, highly successful men, cranks, criminals, insane people—and it is extremely desirable, from practical as well as scientific motives, to discover the causes of these unusual conditions. If we had known at the birth of each of these individuals how his career was going to develop, we could have observed him from the start, and so made a truly genetic study. But now the best we can do is to utilize second-hand data, scraps of information from the memory of the subject and his acquaintances, with occasional records of some significance. There is bound to be much uncertainty in the resulting picture of development. In good hands, however, surprisingly good case histories can sometimes be obtained, and cause and effect may stand out rather clearly in the individual's life history. Freud's psychoanalytic technique, and

other similar procedures, aim at an intimate case history to be obtained from the individual himself by unearthing his forgotten wishes and difficulties. The case history method is probably the most fertile of all, as far as concerns suggestions and hypotheses. It starts with the effect, and tries to judge of the cause; and this is the way in which hypotheses usually take their rise. But we certainly need, in order to reach any certainty in our conclusions, to take the suggestions of the case history method rather as hypotheses than as conclusions, and to go on to employ the experimental method, or at least the genetic, which enables us to start from a known state of affairs and trace out its consequences by following the development forward. Thus, we may hope, numerous inviting hypotheses originating in case histories may ultimately be put to a real test.

Of late years, psychology has made extensive use of what may be called the comparative method, which differs from those previously mentioned in not attempting to follow the activities of any individual either forward or backward, with or without control of conditions. We may compare different individuals, or different collections of individuals, and often learn something in this way. We do learn at once that individuals differ, and that, just by itself, is a healthy observation for any one to make who is interested in cause and effect. It does not mean, to be sure, that cause and effect have no place in human behavior, but it does mean that causal factors are numerous and much interwoven, so that prediction and control are difficult to attain.

To a certain extent, the comparative method is now an adjunct of all the other methods, since the fact of

individual differences, at any age and in any performance, is now fully demonstrated, so that we recognize the necessity of basing any study on a number of individuals rather than on one. But more than this can be gained from the comparative method. A certain factor may be present in one class of individuals, and absent in another class; by comparing the two classes in other respects, we may learn something as to the importance and relationships of the factor in question. The comparative method does not directly study cause and effect, antecedent and consequent, for it does not attempt to follow the sequence of events in any individual. It studies *concomitants,* facts that are found together; but which of two facts that are found together is the cause and which the effect, or whether both alike are effects of some cause not yet revealed, the comparative method of study does not enable us to decide.

That form of the comparative method which is most used in psychology is the method of statistical *correlation.* It is much used both in the applications of psychological tests as indicators of success in school or vocation, and in the scientific search for common factors present in various types of performance. No doubt the various types of activity in which men engage are complex products of various different factors, which it would be desirable to identify; and correlations are much used in the effort to find common factors and so to advance towards analysis.

For the purposes of social psychology, and for use in studies in the social sciences, any of the methods of investigation just named can be employed. The controversy that has raged within the psychological camp

between the introspectionist wing and the behaviorists is of no significance here, since both subjective and objective observations can be used, and have successfully been used, in the field of social psychology. Social psychology, as a branch of psychology, studies the individual rather than the group; it studies the individual as affected by the group; but the results may throw some light on group behavior, and on the differences between groups.

Psychological tests, applied to samples of different races or of different occupational classes within a population, have shown *prima facie* differences in intelligence, for example, and the more penetrating question as to how these differences have arisen, whether through heredity or through environmental influences, can be attacked by the use of test methods along with other lines of investigation. The study of preferences and attitudes, as studied by obtaining expressions from members of different racial or occupational groups, has shown itself to be quite illuminating in certain studies. Public opinion, as influenced by intellectual and by emotional appeals, has been studied by this method. Games of various sorts provide a valuable field for social psychology, since within the game situation there is less taboo and freer play of desire than in the serious affairs of life. In a study of the game of poker, a combination of introspective and objective methods was employed, in order to trace out the relationship of the desire to win to the objective factors in the game situation.

Every one of the "strategical" methods of psychology, also, can be fruitfully applied in social psychology.

Experimentation in social psychology has made a beginning, at least, and has a hopeful future. The reliability of testimony has been studied in experimentally controlled situations. Preliminary experimental attacks have been made on the problem of the jury, seeking to answer the question whether a finding in accordance with facts fully known to the experimenter can be better reached by the usual plan of requiring the jury to discuss the evidence and reach agreement on a verdict, or by the radically different plan of requiring each juror to reach his own independent verdict, and afterwards ascertaining the degree of agreement between these individual verdicts. Such experimentation needs to be rather elaborate, and must be varied in several ways before a practically useful conclusion can be drawn. The genetic method is being applied in tracing the growth of social play and other social behavior in little children. The case history method is employed in seeking the source of anti-social conduct in the individual, and in tracing back to the family situation of the child the peculiar social inadequacies which later appear in the young adult, and which go by the name of the "neuroses." The comparative and correlational method is used in seeking to apportion weights to the various possible factors in the genesis of delinquency.

A word should be said on the method of "folk psychology," a form of psychology which is of special interest to anthropology and to the social sciences generally. The problem of folk psychology is to reach a psychological understanding of language, art, customs, religion and myth, and other products of group life, especially of the life of primitive peoples. The data of

folk psychology are perfectly concrete and objective. They are products of the long-continued activities of individuals living in groups. But we have only the products to examine; the process leading to these products has vanished, and cannot be observed. Even the situation giving rise to this process cannot be observed. It is clear, then, that folk psychology does not fit into our scheme of strategical methods. Experimentation is out of the question; the genetic method, observing the development as it proceeds, is out of the question; even the historical method is ruled out in the case of primitive groups. The comparative method can sometimes be applied, as when the cultures of various groups are correlated with ascertainable facts of their geographical situation—but this would be rather an anthropological than a psychological study, since the individual would not make his appearance anywhere in the picture. In general, the method of folk psychology consists in attempting to furnish a psychological *interpretation* of the facts of myth, ceremony, and so on. Its effort is to apply to these facts what is known of the desires and behavior of the individual, and so provide a psychologically reasonable explanation of the origin and development of cultural products.

For example, Wundt, in his study of primitive religion, rejects the view that myth originated from the attempts of primitive man to understand the phenomena of nature, i.e., from a rudimentary scientific interest. No purely intellectualistic conception would fit the fact that primitive religion is attended with emotion and closely bound up with individual and tribal desires. Religion had to do with security from danger, with

victory over the enemy, with fertility of the fields. Wundt therefore regards primitive religion as springing from what is called "empathy," the projecting of one's hopes and fears into the objects one is dealing with. The animistic conception of a river, for example, developed not because primitive man, in seeking to understand the behavior of the river, saw some analogy with his own behavior, but because he feared the river, or hoped something from the river, and projected his emotional state into the total situation, so taking the river to be a creature of like passions with himself.

This interpretative procedure, however fascinating and however ingeniously carried out, is scarcely to be called a method of investigation. It is regarded with little serious respect by the anthropologists, who are the real investigators of the facts and relationships of culture traits. Yet we should do well to reserve judgment, and not be entirely pessimistic over folk psychology; for it certainly does seem that there is something psychological to be learned from the facts of culture. It is less true that psychology is called upon to explain the origins of culture than it is that psychology needs a scientific knowledge of the cultural environment, as well as of the physical, in order adequately to study the response of the individual.

What we have called the tactics and the strategy of psychological investigation appear to leave us with some important questions of method still untouched. The "method" of a psychologist who writes a textbook would be indicated by his chapter headings, and by the concepts with which he worked in organizing his material. The chapter headings indicate the sort of material

that he would like to find for inclusion in his treatment of the subject. A radical change in the chapter headings of texts would mean a change in the current manner of envisaging the science. The change might be called a change in the objectives of the science, or it might be called a change in the general method of treating the subject, of conceiving the subject, of mapping it out for investigation.

Adhering to our analogy with military science, we might then superpose upon our tactics and strategy a discussion of the *statecraft* of psychology, which would select the objects to be attained and the problems deserving of attack. If you like, statecraft may be said to concern itself with objectives rather than with method. However, the ultimate objective of all psychologists seems to be the systematic, or scientific, description of the phenomena presented by the individual; and the divergencies between the various schools of psychology have to do with the best ways and means—the best method, that is to say—for compassing this general objective. When one who looks at the present state of psychology with the perspective of an outside point of view speaks of the "method of the behaviorists," for example, what this external observer has in mind probably has nothing to do with the question whether the behaviorist uses the experimental or the comparative method, or even whether the behaviorist still adheres to his original dictum that all introspective observations must be rigidly excluded, or may have found it possible to admit that method of observation under the new name of "verbal report." To the psychologist, immersed in the internal

affairs of his own group of workers, for behaviorism to make use of introspection would mean that behaviorism had ceased to exist; but I have the impression that the outside observer would notice little change, and that behaviorism in perspective would still be behaviorism. When I see a book on sociology that is announced as "frankly behavioristic," I wonder what that expression can mean. Does it mean that the sociologist has given up group introspection as a method of obtaining sociological data? When another eminent authority in the social sciences finds that the behavioristic psychologists are disturbing the peace of accepted doctrines by announcing that human intelligence is rather low and is determined by heredity—whereas the behaviorists, or some of them, have been proclaiming that all such traits as intelligence can be fully controlled by environmental influences—then I wonder what behaviorism really is, as seen from a certain distance; and the best conclusion I have reached is that behaviorism is that which "disturbs the peace." Behaviorism handles the human subject without gloves, tears him apart with no compunction. Behaviorism prides itself on being "hard boiled," and as upsetting as possible. Such, it seems to me, is the behavioristic method, as viewed by the interested observer who looks at the doings of the psychologists with a certain detachment.

Yet this radical temper, this handling the human being without gloves, is by no means peculiar to the particular group which we psychologists, among ourselves, would call the behaviorists. It is fully shared by that other group known as the psychoanalysts. From

the distance, I suspect, the psychoanalysts and the behaviorists appear to belong together. Do not both groups deal with behavior problems, and do not both treat the problems of sex life with especial freedom? Yes, but to the psychologist they seem diametrically opposed in point of method. The behaviorists accuse the psychoanalysts of being utterly unscientific and subjective in method, and of employing the most ridiculous concepts, from a natural-science point of view. The psychoanalysts, on the other hand, accuse the behaviorists of having absurdly inadequate concepts of the human individual and his strivings, and of working with absurdly limited and mechanical methods. The behaviorists start with animal behavior, which affords a comparatively simple groundwork, the lines of which can then be carried over into the more complicated structure of human behavior. The psychoanalysts have no interest in animal psychology, which seems to them wholly irrelevant to the real problems of human conduct. The behaviorists deal with conditioned reflexes, where the psychoanalysts see wish-fulfillment. The tactics and the strategy of the two schools would seem to be as diverse as possible. But, at any rate, they are both alike in possessing a free and radical spirit, which is undoubtedly a great asset in any scientific enterprise.

This commendable spirit, to be sure, is not limited to the behaviorists and the psychoanalysts, but is widespread through the whole mass of psychologists, even among those whom we might call the "middle-of-the-road" group, who decline to be numbered as adherents of any of the militant schools, partly because they recognize that every one of these schools is making valu-

able contributions, in detail, to the general body of psychological knowledge. If you recognize good in all of the schools, you can't be a strict adherent of any one, since a large part of the creed of each school is the futility of some or all of the other schools. Probably the great majority of all psychologists are proceeding on their way in the middle of the road. At the same time, many or most of them are pretty radical psychologists. We used to be told that, since human life is right around and in us all, nothing especially strange or startling could ever be discovered by psychology. Psychology's best hope was to elaborate the obvious, and to present in orderly form what everyone knew disjointedly. But quite a little has happened to disturb that old belief; and today, I think, the general belief is that psychology has just begun to scratch the ground, that genuine discovery is possible, and that the whole face of the science will probably be changed as discovery progresses. Only, the line of progress is not perfectly clear.

There is a select group of psychologists which regards the behaviorists and the psychoanalysts as not half radical enough, in a scientific sense. Strangely enough, this ultra-radical school claims direct descent from the introspective-experimental school of Wundt, which dates from 1880 or earlier, and its leading exponent has been the late Professor Titchener, often regarded as a vigorous defender of the old order of psychology. But Titchener's "existential psychology" is very radical in its insistence that psychology break loose from its common-sense concern with human values and practical meanings, and devote itself to

an uncolored description of what actually happens in the experience of the human subject. The psychoanalysts in their obsession with human desires, and the behaviorists in their obsession with practical conduct, alike remain in the prescientific stage of the primitive physicist who, if he had written a book, might very likely have had a chapter on the bow and arrow, another on the canoe, and another on ways of making fire. Physics became a science by neglecting the human utility of these objects, and so getting down to the elementary laws of mechanics. Once these laws were discovered, indeed, they proved to have the greatest utility in practical mechanical operations. In the same way, the existential psychologist would leave aside the objects which man sees, and the goals which he strives for, and seek the sensory elements of experience, and the laws of their sequence and coexistence. Only thus, he holds, can we hope to get below the surface of everyday life, and reach a scientific description of actual facts worthy to be placed alongside of such a science as physics.

The behaviorists and the psychoanalysts have paid little heed to this existential psychology, except to spurn it out of their way as a thing of no moment. But there is a school which has recently arisen in direct antagonism to the existential, or sensationalistic-analytical school. This newest of psychological schools is the German Gestalt psychology, also called the configurationists. They deny the independent reality of sensory elements, and teach that form, figure, pattern, structure, are primal. They regard the analytic procedure of the existential school as highly artificial, and

its results as nearly valueless. They would substitute for analysis a study of the conditions under which a given form or pattern is recognized. Turning their guns from the existential school upon the behaviorists, the Gestalt psychologists attack the conditioned reflex as an unreal abstraction, and object to that familiar conception of the learning process which speaks of the mechanical linking together of stimulus and response by trial and error and frequency of repetition. In their view, learning is never mechanical, but consists in *seeing* the situation aright, i.e., seeing it in a way that permits of the completion of the activity in which the man or animal is engaged. Though these Gestalt doctrines are so different from those of other groups which we have called radical, yet they are radical themselves, inasmuch as the traditional effort of scientific psychology has been towards analysis—either analysis of experience into sensory elements, or analysis of behavior into reflexes and other elementary movements, and analysis of learning into elementary associations or (according to recent jargon) elementary conditionings. The Gestalt psychologists believe that psychology, in thus imitating chemistry and anatomy, has got upon a track unsuited to its subject matter, for which reason it has never seriously attempted the thing best worth doing, the study of total situations and total activities. In this attention to totalities the configurationists resemble the psychoanalyst, while in the detail of their method they are utterly removed from him, since while the psychoanalyst is concerned with wishes, and largely with what he chooses to call unconscious wishes, the configurationists stress see-

ing, or perception, as the essential object of all psychological study.

In all this apparent chaos of conflicting views and tendencies, the situation is saved by the middle-of-the-road psychologists, who are willing to recognize good work wherever they see it, while still turning a deaf, or at least blunt ear towards any one who believes that in his own favorite line of study he has found the key to all progress. Also it is true that all varieties of psychologists are concerned with the individual organism—with the experience of the individual, the behavior of the individual, the emotional and other states of the individual, the needs and demands of the individual, with the growth of the individual and the continual interplay of heredity and environment in determining his characteristics at any time, with his intelligence, his personality, his decline in old age and his occasional disintegration in abnormal conditions.

Now the individual, it should be emphasized in opposition to the extreme environmentalist, is an individual by virtue of a partial discontinuity with the environment. The individual offers a certain resistance to the forces of the environment. Without the environment, to be sure, the individual could not develop, could not exist. But, on the other hand, without some degree of resistance to the environment, the individual would speedily disappear. If the one-celled ameba or other organism offered no resistance to the free diffusion of water from the medium in which he lives, he would promptly dissolve in the water. If the warm-blooded bird or mammal, at the other extreme of the animal scale, did not maintain his body temperature

constant, in spite of changes in the external temperature, he would soon freeze or cook to death. If the child did not offer a healthy resistance to the moulding efforts of his elders, there would really be nothing left to mould. If the man yielded fully and without selection or preference to all social pressures, he would of course have no individuality, and would be a negligible quantity in the group, even if he could remain alive at all. Environmental pressure, to the psychologist, is a complex of stimuli, some of which may be too weak to elicit any response from the individual, some of which arouse activity, while others inhibit activity, and thus serve as checks and controls in the development of the individual's behavior pattern. The individual, at any moment, may be said to have a certain constitution, the product of his heredity and of his previous activity, and how he shall respond to the environmental pressure depends on that constitution as much as on the pressure exerted upon him.

JURISPRUDENCE

By

ROSCOE POUND

JURISPRUDENCE

A generation ago it would have been hard to find any one in the legal profession to listen patiently to a proposition that law afforded a field for research in any sense other than historical investigation of the origin and development of positive legal institutions and positive legal precepts. With even less patience would the profession of that time have listened to a proposition that jurisprudence was to be treated as one of the social sciences and that research in law, in the spirit of a science of law so conceived, could be made profitable for the administration of justice. As then understood by its votaries in the English-speaking world, jurisprudence was confined to a comparative analysis of the common law and the modern Roman law, in the endeavor to find universal presuppositions and universal principles of developed law, or to generalizations from comparative historical study of legal institutions, legal doctrines and legal precepts, in the endeavor to seize upon the idea which was unfolding in legal development and, as it were, chart the course of that unfolding. Not without reason the lawyers of that time had little use for a science of law so conceived. It is not too much to say that, except for the systematic work of analytical jurists, from the standpoint of making legal institutions effective for their purpose the courts and the leaders of the profession

were ahead of the legal science of the last generation. The analytical and historical jurisprudence of the nineteenth century were distinctly retarding influences in more than one connection in which the administration of justice was palpably improved by courts going counter to the accepted scientific ideas of the time. If we were permitted nowadays to use the word instinct, I should say that a sound instinct was behind the attitude of English lawyers referred to in Dicey's well-known saying that "jurisprudence stinks in the nostrils of the practising barrister."

When the shifting of the social center of gravity, as one might call it, from country to city, the change from a rural agricultural society to an urban industrial society, the economic unification of the whole land, called for creative activity on the part of judges, jurists, and lawmakers, our legal science taught the futility of effort and expected legal institutions to develop spontaneously through the inherent force of an idea. Courts and lawmakers, through the pressure of unsecured interests, found themselves pushed continually into a new approach to legal problems. But the scientific approach and the orthodox professional approach remained either rationalist or historical. In either event we came to see that the older approaches led away from instead of toward the problems of the time.

Both of the nineteenth-century approaches led back to the rationalism which replaced authoritarianism at the breakdown of the relationally organized society of the Middle Ages. The conception of a social organization resting on authority, religious or customary,

and of acquired rights resting on the social organization, was followed by an era of rationalist natural law in which authority was replaced by contract. In law, as a normal situation, rights of one man against another arose from contract. They grew out of a legal transaction depending on the will of the parties, in which the law gave effect to their declared will. Hence it seemed that ideally, or as it was put, "naturally," they must be so created in society. For a time jurists strove to make a contract of everything. They sought to rest all things upon a basis of an assumed legal transaction. As Maitland put it, contract became the "greediest of legal categories." This feature of natural-law thinking persisted in law long after the nineteenth-century metaphysical jurisprudence, and historical jurisprudence following it, had turned juristic thought in another direction.

Long after a historical theory had replaced the theory of a legal transaction for the basis of law in general, the attempt to reduce all things to contract went on in the details of the legal system. In the form of a mandate theory of the constitutional separation of powers, it was put in the foundations of American constitutional law. As late as 1853 Parsons, in his treatise on contracts, put it very much in its eighteenth-century form as the foundation of the details of private law. For a long time it embarrassed the development of a law of public utilities. Questions of public utility and patron were treated as if they arose between two farmers haggling over the sale of a horse. No distinction was perceived between Mr. Barkis giving a small boy a lift between Blunderstone and Yar-

mouth and a chartered railroad corporation distributing passes about the community. The crucial point was a legal transaction of professing a public calling or a legal transaction of dedicating property to a public use. Likewise the development of a law of quasi contract was retarded by this mode of thought. Blackstone did not hesitate to assume a contract to pay a judgment, a contract to do what statute or custom enjoined, a contract to perform an official duty, or even a contract to repay money received by mistake or extorted through duress. The passing of the "promise implied in law" and recognition of unmerited acquisition of benefits as a substantive basis of obligation, perhaps mark the end of the long chapter of contract jurisprudence.

During the reign of contract there was no place for research of any sort. By a sheer effort of reason one could discover the terms of the implied contract behind every situation. A process of abstract reasoning on the basis of the ideal of an abstract perfect man was taken to suffice for every problem. History was, perhaps, of some curious interest as showing human gropings for reason in the past. But these gropings had no real value. The one valuable thing in law was the ultimate rule required by reason, and we could find that by proper use of our reasoning powers no matter what the past.

This way of thinking reached its high-water mark in the paper-constitution making of the French Revolution. It came to us with the natural-law ideas of the Continental publicists and was given added currency by Blackstone. But a change begins already in the

eighteenth century. In James Wilson's Law Lectures (1790) law is usually rested squarely upon contract. And yet a transition from the contractual theory of law is apparent. Indeed, it is suggested in Blackstone's Commentaries. Blackstone is seldom critical of such things. He frequently sets inconsistent theories side by side with no attempt to choose between them. Thus, in characteristic fashion he conceives of the written law as consented to through representatives in Parliament, but of the unwritten law as made up of immemorial customs; that is, in effect, as resting on a historical basis. Whether the unwritten law is declaratory of natural law, as he suggests in one passage, or is founded on a consent implied in the customary course of popular action, he does not decide. In Wilson's lectures the transition has gone further. Consent by a legal transaction is giving way to consent by a custom of popular action. Custom is taking the place of contract. In Story the transition is complete from a contract basis of rights and contract basis of government to a historical basis, confirmed by a constitution, which declares natural rights with a historical content. With Kent also there is a historical content and the theoretical basis is in transition from natural law to history.

Jurists postulated a social contract to explain the social *status quo* at a time when men began to inquire as to its authority, to ask what claim it had to be maintained and preserved, to ask what it was that made some things yours and some things mine. In the nineteenth century, metaphysical jurisprudence went behind the assumed legal transaction just as the natural-law jurisprudence had gone behind the social *status quo*.

As natural law had asked how in reason rights might arise, metaphysical jurists asked what essential, unchallengeable idea lay behind a legal transaction. In the modern Roman law it was free will. Thus it seemed that free will was the fundamental idea for legal and political science. The resulting will-jurisprudence, as it might be called, was made to carry on the atomistic individualism which had developed after the breakdown of the relationally organized society of the Middle Ages. But the giving up of the contract theory was the beginning of a different conception of the purpose and nature of law. As we have seen, the contract theory was not concerned with history. All institutions, all doctrines, were at the mercy of a new agreement, which might be made at any time and, as some thought, ought to be made at frequent intervals. The historical theory, with its organic conception of institutions and its idea of continuity with the past, was radically opposed. Although for a season historical jurisprudence went forward on the old lines laid out by the rationalist thought of the eighteenth century, in the end it was sure to lead to a different order of thinking.

For one thing, the historical method called for research. It held that we must regard the institutions and doctrines and precepts of the time and place not as things made here and now by an agreement in *verba de praesenti* which may be rescinded by consent tomorrow, but as the culmination of a course of historical development. Hence we must understand that course of development if we are to understand the positive law. The historical school grew up under the influence of Hegel's philosophy of history and accepted

the Hegelian doctrine that history was a record of the unfolding or realizing of an idea. It assumed as its starting point the idea of free will which the metaphysical school had put at the foundation of the science of law. Thus it directed historical research toward a verification of the metaphysical theory of law. By historical study we were to identify the idea and trace the orbit of its progressive realization. Sir Henry Maine put the idea of progressive realizing of freedom in juristic terms as a progress from status to contract, and in all his writings on jurisprudence the evolution of law is treated from that standpoint.

During the hegemony of the historical school, jurists came to believe in research. But it was a research strictly limited both in its scope and in its purpose. In its scope it was limited to the positive legal materials of the past. In its purpose it was limited to discovery of the ideas—or ultimately the forms of the idea—by which the course of legal development, both in general and in its details, was inevitably and enduringly determined. Conscious creative effort to improve the law was futile, except as the historically given materials could be understood better, systematized more thoroughly, and stated with more clarity and precision. Investigation of how legal institutions work, of the effects of legal precepts in action, of the extent to which they achieve or fall short of what we seek of them, was as foreign to the program of the historical school as to that of the school of natural law. To the historical school, the legal materials had in them, in their idea, the agency of spontaneous development, so that things external to them were irrelevant. To the adher-

ents of the contract theory there was not development but conscious creation *de novo* for each occasion, and reason was self-sufficient to that end. But the latter did not reject the idea of juristic, judicial, and legislative activity toward better things. Because of this the legal science of today is attaching to Jefferson rather than to Burke.

There was another consequence of the change from contract to history. The contract theory conceives of an independent assent of free and, as it were, isolated individuals. It looks at things from the standpoint of the individual personality. When all things are so looked at, and community values and civilization values are reckoned in terms of personality value, we shall think of the social and legal order, as Jefferson did, on the analogy of a simple contract. If, on the other hand, we look at all things from the standpoint of organized society, and especially if from the standpoint of some particular politically organized society, personality values and civilization values being reckoned in terms of community values or political values, we shall think of society and state, not as aggregates held together by contract, but as organic wholes, and if we still cling to the terminology of contract, we shall think of the social contract, as Burke did, in terms of a common-law bond binding the heir. But it is not necessary to choose between these as inevitable alternatives. It is quite as possible to look at things from a third standpoint, the standpoint of civilization. It is quite as possible to reckon personality values and community values in terms of civilization values. Although it has been easy superficially to lump

the second and third under the vague epithet of "socialism," they are as distinct as the first and second. If nineteenth-century abstract individualism carries on the abstract individualism of the law-of-nature school, yet it does so on an organic basis. And if nineteenth-century socialism has a Hegelian philosophical pedigree and a historical juristic pedigree, yet it conceives of the end of law in terms of abstract individualism. The first and second of the three standpoints suggested could be lumped with equal truth as "individualism." For the orthodox "socialism" of the last century was in effect a social individualism. It sought a maximum of free individual self-assertion through a maximum of collective action, as orthodox "individualism" sought the same end through a minimum of collective action. When individual self-assertion and collective action are both counted as means, we have something which is neither "individualism" nor "socialism," as those terms got their settled application in the last century, but a distinct tendency, more and more characteristic of the present century.

Twentieth-century law and twentieth-century juristic thinking seem to me to be taking two directions: (1) Concern for the concrete individual life rather than for the abstract individual will, and (2) concern for civilization as distinct from and contrasted with any particular politically organized society.

Many causes, social, economic, and political, have contributed to require shifting of the emphasis from the abstract will of the abstract individual to concrete claims of concrete human beings. What compelled jurists to this shift of emphasis was the development

of psychology in the latter part of the last century. Under attack from modern psychology, the "individual," in the sense of the nineteenth-century metaphysical jurisprudence, and the "individual free will" were as insecure foundations as "the natural man" and the "state of nature" had proved to be under the attacks of the critical philosophy a century before. Indeed, before philosophical jurists had begun to think of such things, legislation was tending more and more to show concern for concrete human beings at the expense of abstract individualism. The last quarter of the nineteenth century was marked by a steady growth of such legislation and the point of view was typical in legislation and administration in the first two decades and in judicial decision in the second decade of the present century.

It will be worth while to look into this change in some detail. No doubt pioneer conditions were behind homestead and exemption acts. But they survived pioneer life and the principle of this legislation is active in the urban industrial life of today. Legislation against payment of wages in orders on company stores was active after 1881 and legislation as to conditions of labor after 1884. Later there was legislation as to hours of labor for women and children, child-labor legislation, and minimum-wage legislation. There were small loan acts or loan shark laws, workmen's compensation acts, blue sky laws, and much more of the sort. It is instructive to compare the old régime of employer's liability for negligence only, enforced by actions at law, with the new régime of workmen's compensation, made effective by administrative agencies.

The former afforded a theoretically complete provision for abstract justice to the abstract worker. Yet it failed notoriously to do justice in concrete cases because of the delay and expense involved in exact judicial determination of the facts and the precise measure of damages, and because of the unequal position of employer and employed in respect of adequate professional representation and the prejudice of juries due to dissatisfaction with a system whereby the risk of accidents inevitable in the conduct of industrial enterprises was so largely thrown upon those least able to bear it. In contrast, the régime of workmen's compensation is theoretically defective in many ways. It seeks a rough-and-ready justice rather than an absolute and exact justice complete for each case. Experience has shown clearly that the interests of the concrete laborer, and on the whole, those of the employer, are much better secured by the régime which is abstractly defective than by the régime in which the theoretical provision for full and exact justice to all men in the abstract was quite perfect. Yet abstract individualism had become part of our received ideals and had so strong a hold upon us that many courts obstinately resisted such legislation, and most of them insisted for a generation on full theoretical securing of the abstract individual at the expense of the full human life of concrete human beings.

Take, for example, the attitude of the courts toward homestead and exemption laws. Chief Justice Taney, trained in the classical natural law, was willing to allow a state to make retroactive exemptions "according to its own views of policy and humanity." He

conceived that a state might "direct that the necessary implements of agriculture, tools of the mechanic, or articles of necessity in household furniture, shall, like wearing apparel, not be liable to execution on judgments"; that the state had power in this way to protect its citizens "in those pursuits which are necessary to the existence and well being of every community." This view of Chief Justice Taney was approved by a great text writer and by more than one court. But a generation later, when the question came directly before the Supreme Court of the United States, the waning of the old ethical natural law, the rise of the conception of giving effect to the declared will, and the economic development in the northern states after the Civil War, led to interpretation in the light of different ideals and the view of Chief Justice Taney was rejected. In the Virginia Homestead Cases, the same year, the argument of counsel brought out clearly and ably the concrete economic situation in the South after the Civil War to which the statutes involved in the two cases were palpably directed. The complete ignoring of this background of fact, as wholly irrelevant, should be compared with the weight given to the *de facto* housing situation during and after the World War in the District of Columbia Rent Cases, and the New York Housing Case, and the recognition of the *de facto* crisis in the railway wage situation in 1916 which controlled the decision on the Adamson Law. The concrete point of view seemed as much a matter of course in the present century as the abstract point of view in the last century and in the dissenting opinions in the District of Columbia Rent Cases.

Another useful comparison may be made if we note the spirit manifest in the course of decision in the courts from 1886 to 1900, and in some states down to 1910, upon the subject of liberty of contract as affected by so-called social legislation.

Two courts in passing adversely upon labor legislation, because it infringed upon a theoretical equality of free contract, noted the frequency of such legislation in recent times, but said (one of them as late as 1902) that it was not necessary to consider the reasons therefor in order to determine whether the legislation was reasonable; reasonableness was an abstract question to be determined from the text of the statute abstractly regarded. Another court asked what right—not what warrant in fact but what abstract justification—the legislature had to "assume that one class has need of protection against another." Another court said gravely that the remedy for the company-store evil was "in the hands of the employee," since theoretically he was on an equal footing with the employer, compulsion in economic fact being irrelevant where it had no place in legal theory. Still another said that "theoretically there is among our citizens no inferior class," and no facts could avail against that theory. Other courts, at the end of the last century, spoke of company-store legislation and laws to insure fair ascertainment of the laborer's work, where he was paid on the basis of work rather than of time, as putting laborers under guardianship, as creating a class of statutory laborers, and as stamping industrial laborers as imbeciles. This artificial type of reasoning on the basis of a theoretical abstract equality, ignoring the facts of

the economic order, began to disappear from the books, in this particular connection, two decades ago. It needs less and less to be refuted in spite of a temporary recrudescence since the World War. More and more the courts assume that they may and indeed must look at life in the concrete and not man in the abstract.

Legal thought has been busy upon philosophical theories of this change of front and attempts to formulate a new conception of the end of law. Juristically it has been put as a recognition of the social interest in the individual life. Economic realism has sought to put it as a conception of justice in terms of wants rather than of wills. The Neo-Kantians would substitute an attempt to comprehend all possible ends for a harmonizing of all individual wills. The Neo-Hegelians would substitute for the simple idea of freedom a complex idea of civilization. They would replace, as a measure of values, the maximum of abstract free individual self-assertion by the maximum of human control over nature, both external nature and human nature, toward the satisfaction of human wants. The Neo-Scholastics would think of social phenomena as moral phenomena, not merely of the abstract man as a moral phenomenon. The adherents of the positivist natural law would think not of the abstract rights of abstract individuals but of the functions of social life in a civilized society, and the relation of concrete human behavior thereto. Those who come to the problems of law from a psychological approach think of a task or series of tasks of adjusting or harmonizing or integrating conflicting or overlapping human desires so as to achieve the values of civilization with a minimum of

friction and waste. In one way or another all have set their faces toward civilization values as definitely as men in the last three centuries had set theirs toward individual personality values.

No doubt the will-jurisprudence of the nineteenth century will hang on here and there for a long time to come, just as the contract jurisprudence of the eighteenth century has been known to darken counsel in out-of-the-way cases even in twentieth-century courts. But as a real force either in law or in the science of law the one is now as spent as the other.

Granting this, however, you will have been saying for some time, what has it to do with research in law and in the science of law? My answer must be that while under the reign of the will theory in law and the analytical and historical methods in the science of law there was no place for research other than a bringing together of positive legal precepts for comparative analysis and historical investigation of the development of positive legal materials, the shifting of the emphasis from the will of the abstract man to concrete wants or desires of actual human beings and the recognition that jurisprudence is one of the social sciences, having to do with a highly specialized form or phase of social control, have made research a presupposition of the work of lawmaker, judge and jurist. Jurisprudence can no longer be self-sufficient. We no longer expect the law to improve itself by the inherent force of an idea of justice or right or freedom. We no longer expect juristic salvation through a critique of law wholly from within. We recognize that the nineteenth-century attempt to confine the jurist to the positive

legal materials is as futile as Baron Munchausen's endeavor to pull himself out of a swamp by his own long whiskers. Hence the legal science of today is characterized by a functional attitude, an attitude of asking what law does and how it does it and how it may do it better rather than asking merely what it is and how it came to be what it is. The legal science of today is characterized by an attitude of studying law in relation to and as a part of the whole process of social control, by a movement for preventive justice, by a movement for individualization—for administrative application to individual cases and individual men rather than always to cases in the gross, under the type of an abstract case, or men in the gross under the type of the abstract individual man. Above all it is characterized by a movement for team work with the other social sciences. And these new attitudes and new movements call for an inventorying and valuing of interests, for a working out of the limits of effective legal action, for a study of law in action, as contrasted with law in books, and discovery of means of making the machinery of the law effective for its purpose, and most of all for a devising of means to inform judges, jurists and lawmakers with assurance as to the social facts involved in legislation and in the judicial finding, shaping and application of legal precepts, which call for research and for research in connection with the other social sciences, as an indispensable prerequisite.

But, it will be said, such things will unsettle the law and impair the general security. This is a stock objection of the lawyer whenever anything new in the legal order is demanded by the progress of the social order.

Serjeant Hill, a learned property lawyer, steeped in the strict law, burnt his books as a protest against Lord Mansfield's decisions made in the creative spirit of the school of natural law in an era in which the old law, developed as a land law for medieval England, had to be made a law of the world for a commercial England with colonies in every quarter of the globe and traders on every sea. We now see that the old legal materials were by no means rejected. They were adapted to new uses and made to do new work. Later generations have regarded Lord Mansfield's decisions as among the glories of our legal history. But to the learned serjeant it seemed that certainty was lost; for the future no one would have use for law books. Again, when the reform of procedure in the middle of the last century did away with the old forms of actions, one of the justices of the Supreme Court of the United States declared that the result was to destroy all certainty. Before the elaborate working out of a system of substantive legal rights, the path to certainty lay through procedure. Until rights had been defined, remedies and the means of obtaining them required strict limitation and definition. It was not easy to see that a new and better guarantee of certainty had grown up which made the old formal procedure unnecessary. Yet we recognize today that in England, where they have gone to the extreme in simplifying procedure, the general security is as well maintained as ever. To give one more example, when teachers in law schools began to bring a more scientific method to bear upon the system of our law, seeking to make of the body of positive legal precepts a coherent

body of logically interdependent propositions, Judge Baldwin conceived that the general security was threatened with "a new peril," in that the apocryphal eighteenth-century "reasons" for legal precepts and legal doctrines, which had been given currency by Blackstone and his imitators, were giving way to an unfamiliar analysis. Today, when the exigencies of our economic unification and industrial organization make comparative analysis inadequate, the established method is held to be a bulwark of certainty and it is believed that certainty and uniformity will go with it if it is pushed into the background.

It would be a serious matter if certainty in the legal order, uniformity in the application of legal precepts, predictability in the course of administration of justice were to be substantially impaired, even for strong reasons. Lawyers are justified in their solicitude for certainty. The general security is a paramount social interest and solicitude for certainty is nothing less than jealous fear for this paramount interest. But, as things are, the certainty for which lawyers fear is largely illusory. Our technique gives an appearance of certainty to operations which, when examined critically, are often anything but certain or uniform. In a great mass of everyday cases, where a settled rule of law exists and is obviously applicable, there is certainty enough, and the economic order functions upon that assured basis. It is not for such cases that research is much required. Existing methods, applied to restatement of the law and putting of the authoritative precepts in better form, will suffice. But when we leave beaten paths of property and commercial law, where

rules are at hand and are effective, and pass to other fields, particularly conduct and the conduct of enterprises, where new questions are arising in every variety, where detailed rules are ineffective and we must resort to principles and standards, and must find new materials outside of the law or profoundly make over old ones, the case is quite different. Here, given a starting point for legal reasoning, the process is certain. Everything, however, depends upon that starting point; and the law affords many starting points of equal authority with little or no compulsion to take one rather than another. Partly, no doubt, the considerations which lead a judge to choose this point of beginning rather than that are legal in that they derive from authoritatively received ideals which in a real sense are a part of the law. But the line between received ideals of the law and personal ideals of the judge is not drawn, much less drawn clearly. There is no authoritative critique of either and for the most part the process of choosing starting points for legal reasoning goes on unconsciously. What looks like and is taken to be a process of inexorable and inevitable legal reasoning is in truth often a demonstration of a result reached extra-legally by applying the authoritative technique to authoritative materials, chosen from among a mass of competing authoritative materials, by an unauthoritative extra-legal process. So far from impairing certainty, the new science of law must substitute a real certainty, in those parts of the legal order in which certainty is reasonably attainable, for what is more and more becoming an illusion. Judges cannot but be conscious that after all they sit to ad-

minister justice. If in any time or place the authoritative legal materials, treated by the authoritative technique, will not yield just results in the cases which come before them, the pressure of unrecognized or unsatisfied interests and the exigencies of the judges' consciences will drive them to find a way. Thus in every era of transition there is a time in which certainty seems to be lost. In the end the demands of the general security prevail and newer and better ways of attaining certainty are worked out.

Perhaps I need not say that the research of which I am speaking, the research which is called for in order to make our legal order effective for its purpose in the society of twentieth-century America, is something quite distinct from much which for the moment goes by the name of legal research. On other occasions I have ventured to distinguish between search and research; between search for something already at hand and known to every one but the finder, and the quest for hidden or unrecognized or undiscovered truth and organizing it and making it available either for the more immediate purposes of lawmaker and judge or for ultimate purposes of legal science. Indeed, I should go further. What is most needed is something far beyond the work of the law teacher who takes a year off for study of some phase of his subject or to write a book. It is something far beyond what may be done by the law teacher who is given a year's appointment as research professor to relieve the monotony of his ordinary tasks. Not that I would disparage these things. They have their value and it is no mean value. The standard type of law book has a real place in the de-

velopment of the law. Everything that makes for more such books as Williston on Contracts and Wigmore on Evidence should rejoice us exceedingly. But there is work to do which must be done by those who give their lives to research in law. We must organize legal research with no less care and no less thoroughly than we have organized legal education. The days when Story could be a justice of the Supreme Court of the United States, Dane Professor of Law at Harvard, and our most prolific and effective legal text writer—at once judge, teacher, and writer of books of decisive influence in the making of American law—those days are gone as the snows of yesteryear.

In Story's time the only research needed for the formative law of pioneer, rural, agricultural America was study of the English reports and law books, of such American reports as had appeared, and of the modern Roman law on the subjects where common-law materials needed to be eked out or criticized. Research could be confined to law books and the investigations of judge, teacher, and author covered the same materials and might be carried on in the same spirit, on the basis of the same training, and with the same methods. In the simple social and economic order of a century ago the judge, the law teacher, and the law writer could find in his own experience, or in the general knowledge of his neighbors, all that he needed beyond what was in his law books. The social and economic background of the making and application of legal precepts required little study. Mostly it was patent to the observation of an intelligent man without special training or special effort. Today legislation, and

to a less though sufficient extent, judicial decision and administration, suffer from survival into the present of pioneer versatility. They suffer from an assumption that lawmaker, law finder and law enforcer may find in the texts of legal precepts, on the one hand, and in their own experience of life or general knowledge of men and things, on the other hand, all that is needed to make for a due functioning of the legal order. We live in a society in which division of labor and specialization are as necessary as they were unnecessary to the pioneer. There is no generally diffused body of knowledge as to what is required for the effective adjustment of law to the life it is to govern. What once was possible by individual effort of legal scholars immured in law libraries and bringing the historically given materials in the books to bear upon their personal experience and their individual knowledge of the simple problems of a rural, agricultural society of self-sufficient, economically independent neighborhoods, must be done today for an economically unified, urban, industrial society by the coöperative effort of many scholars working together, and working with assistance from without the walls of universities, on matters out of the personal knowledge of the group and often out of the personal knowledge or experience of any of them. The problems are not obvious, nor are the applications to them of the historical materials, when once discovered, or the needed adaptations of the legal machinery to the problems, when once defined, any more obvious. By this coöperative effort they must define the existing problems and foresee the coming problems of administration of justice in America.

They must bring to bear upon those problems all the resources of scientifically organized experience of judicial decision in the English-speaking world. But they must do much more. They must bring to bear upon those problems all the thought of jurists throughout the world, scientifically organized with respect to American needs, and all the resources of the social sciences with results scientifically organized, interpreted, and made applicable for legislative and judicial and juristic purposes. They must do these things with an eye to making our legal machinery the best of which we are capable and of making its operation the best of which such machinery is capable. In Story's day one man could work upon many subjects. Today many men must work upon one subject.

In such fields as criminal justice, judicial organization and administration, legislation on matters of industrial import, judicial decision on matters of economic import, such as corporate promotion or sales agencies, legislation on matters of world-wide commercial import, where comparative law and general economics must be factors, administrative determination in matters of social and economic and industrial import, where situations are made difficult by the number and complexity of the interests involved, in such matters as preventive justice—perhaps *par excellence* the field of the future in legal development, where economics and medicine and psychology and social work must contribute—in such fields not only is it futile to expect that the needed preliminary work of searching for, organizing and making available the data required for lawmaking, judicial law finding, and ad-

ministrative enforcement will do itself spontaneously, or may be done by the old machinery of legislative committees working under pressure at the crisis of law-making, of courts deciding controversies on local fragments of national questions under limitations of jurisdiction, venue and parties, and of administrative tribunals treating every case as unique; even more is it futile to expect solid results from research done to order for some special interest, or done in a commercial or partisan spirit. The four points on which I would insist are: (1) one-man research will no longer suffice, (2) partisan, made-to-order research will but aggravate our bad legislative situation, (3) research must be done upon subjects as a whole, from a nation-wide or even a world-wide standpoint, and (4) it cannot be done fruitfully if under pressure to do it in a hurry. It must be done coöperatively by scholars of many types in many subjects uniting their learning, their organized experience, and their trained energies in a joint effort. It must be carried on for its own sake in a purely scientific spirit. It must be done not upon single controversies as they arise, but upon the whole field in and out of which controversies arise. It must involve long, patient, and self-sacrificing labor on the part of scholars who are not hurried by a demand that they show "results" day after tomorrow, or fill out the measure of an "annual report" at regular intervals, but may devote to each problem all the time and labor and thought which scientific method may require.

For a long time now in Continental Europe such things have been committed to ministries of justice. Bentham urged a ministry of justice for England a

century ago. Later his plan was urged by Lord Westbury, and in 1918 in a memorable report on the reorganization of the British government, Lord Haldane stated the case for such an institution most convincingly. In this country it has been advocated by a commission in New York of which Judge Cardozo was a member, and that great authority has argued for it in an article in one of our legal periodicals. But such a ministry, needful as it is, seems a long way off. It is out of line with the genius of English-speaking peoples. We rely upon spontaneous individual effort, and our instinct is to confide no more than the necessary minimum to official agencies. Moreover, the public would be likely to assume that the work of such ministries would be vitiated by politics, and without the confidence of the public they could achieve little.

As an alternative I have been urging organized, systematic legal research in our universities, where the conditions of effective quest for truth, and the guarantees of public confidence seem assured. Privately endowed extra-academic foundations may do something. But I doubt their ability to inspire public confidence. When they venture into controversial fields, it will not be easy to allay a certain suspicion. In the law school of a state university there is already the foundation of a public ministry of justice, and every university law school may be made the nucleus of an effective American substitute.

Means are at hand, and I expect soon to organize in the law school with which I am connected, a number of institutes of research—first of all, institutes for criminal law, for judicial organization and administra-

tion, and for legislation—in which a research professor giving at least two-thirds of his time to research shall be director. He may, if he will, give one-third of his time to a graduate seminary, but otherwise shall be free to carry on the work of his institute. With him are to be associated the teachers of cognate subjects in the law faculty, certain of them being relieved for this purpose of one-third of their teaching work. With them, also, in some of the institutes, will be associated experts with the rank and stipend of assistant professors. With them will be associated groups of research fellows, some of them candidates for graduate degrees, some of them invited specially to do work of research for its own sake. In addition I hope to enlist the interest and coöperation of members of other faculties of the university working in related fields. For the several faculties of a university make possible coöperative effort by groups of specialists which may be had nowhere else. No foundation could assemble groups of scholars for permanent and continuous joint endeavor such as a university may bring together almost without effort.

I have told you something of the opportunity which law and the science of law afford for scientifically conducted research. I have told you something of what I am seeking to do to meet that opportunity. But I hope to see such work organized and going on in all the great law schools of the land. There is more than enough to do for all of us for a generation to come. In a university founded by Thomas Jefferson there is no need to apologize for the faith in the efficacy of effort to improve our legal institutions which such a program presupposes.

HISTORY

By

ARTHUR MEIER SCHLESINGER

HISTORY

I

History is at once one of the oldest and youngest branches of knowledge. The eager searcher for origins can trace it to the earliest days of man on earth. Whenever *Homo Sapiens* recalled his past actions or made decisions in the light of former experiences, History was beginning to play a part in human affairs. Such History was of a very simple type, of course, not yet written, or organized into a body of learning, or subjected to critical analysis. At first hardly more than an individual's personal memory, in the course of time it began to take on the more imposing guise of tribal mythology or folklore. From such beginnings History has slowly and painfully developed through the travail of the centuries into the form it now possesses of a closely welded, severely critical discipline, with a technique and standards of its own, and cultivated mainly by specialists.

The long history of History attests its hoary antiquity; it is only when we realize that the human story always remains unfinished, teasing our interest with the familiar tag of "To be continued in our next," that we see why this ancient subject is perennially renewing its youth. The Past is always dogging our heels, striving ceaselessly to banish the Present, and succeeding

at least in reducing it to a thin disappearing line between the Past and the Future. The historian's materials are thus constantly accumulating as the Present flees before the Past and the span of the human story lengthens.

Whatever may be said of women in these modern days, the historian's work is never done. Indeed, his work is in constant danger of being undone, for new records often yield fresh information in regard to familiar events and suggest novel and unexpected interpretations. Like old Father William in the nursery jingle, History may at any time kick up its heels and do the unexpected. Lord Acton, lecturing on "The Study of History" at Cambridge in 1895, named the American Revolution as a subject whose main aspects were so thoroughly understood that the work on it need never be done over again. Yet in the years since this pronouncement more progress has been made in arriving at the truth of that episode than in all the years before, with results so shocking to the sensibilities of the voters of a great Middle Western city as to produce almost an international crisis. The new findings, it is interesting to note, were based in very small part on the unearthing of fresh evidence, but were derived chiefly from a reëxamination of what was old and familiar.

In other cases, however, it has been the discovery of new materials which has given freshness and piquancy to this oldest of the social studies. Excavations in widely scattered parts of the world—in Egypt, Greece, Asia Minor, Thibet, Peru, Yucatan, Ohio—have produced a wealth of inscriptions, monuments,

implements and other remains which have enabled scholars to reconstruct the civilizations of early peoples and push back the existing limits of knowledge. Modern History has benefited perhaps as greatly through gaining access to sources hitherto withheld from scholarly use. In recent years whole libraries and collections of manuscripts have for the first time been made available to students. The Vatican Library was thus opened by Leo XIII, and as a result of the World War the government archives of Russia, Austria and Germany may be examined by all comers. All together, countless thousands of new documents have been added to those possessed by historians a generation or so ago.

Much has been written in regard to the uses to which History has been put in different ages. Until comparatively recent times History was looked upon as a legitimate branch of propaganda—for church or for state, for the *status quo* or for radical social change—and, as contemporary events have shown, this attitude still can count on a certain amount of public favor. It has been cultivated almost as generally as a form of didactic or imaginative literature. Not until our own time has History declined the rôle of conscript and become a soldier in its own right. But even under these auspicious circumstances, with the student seeking objective truth as his only goal, the preconceptions of the age, as well as his own human shortcomings, almost certainly refract the historian's vision and affect the results of his researches.

These ulterior influences are stubborn facts which, as we shall see, the historian accepts as a part of the

difficulties of his task, and, accepting them frankly, may in some measure counteract. In these respects, however, History does not stand alone among the social studies. The dogmatist in any one of these fields would do well to reflect that each age has formulated its own economics, its own conception of ethics, its own political theory, and that, so far as we are warranted in judging, scholarly work along these lines will always be conditioned by the "climate" peculiar to the period in which the student does his work. Even such exacting non-social disciplines as chemistry and astronomy trace their lineage respectively to alchemy and astrology, and in the present generation continue to change rapidly under the hands of the workers.

II

The main concern of the present discussion is not with History in other ages and climes, but with History in our own time and primarily in America. Indeed, one does not have to leave the borders of the United States in order to observe how the content and outlook of historical writing have been influenced by changing ideals of scholarship and the shifting interests of society. In the first decades of national independence the writers of History believed it unpatriotic to allow the public to see great national heroes in their unguarded moments—*en dishabille,* as one of them put it. When Jared Sparks, professional historian and President of Harvard, undertook to edit the writings of Washington, he altered and "embellished" the language so as to set the Father of His Country firmly on

his pedestal. It may also be noted, in passing, that he omitted Washington's uncomplimentary references to the people of New England. At a humbler social and scholarly level was his contemporary, "Parson" Weems, who, as everyone knows, invented the cherry-tree legend and gave posterity the conception of an impossible Washington which still lives in the minds of most people despite all efforts of later writers to combat it.

The age of historical mythology gave way to the democratic upheaval of Jackson's times and a lyric belief in the divinely appointed mission of the plain people. It was during these years that George Bancroft began his gargantuan labors, collecting and consulting great masses of hitherto unused documents and, by his thoroughness, laying the foundations of modern historical scholarship. An ardent democrat and a leader of Jackson's party, Bancroft scanned the horizon of early America for evidences of the irrepressible conflict between democracy and despotism, and reported his results in the incandescent rhetoric of a Fourth-of-July orator. As the passion for popular rights was merged in the bitterness of sectional controversy, another shift occurred in the historians' point of view, and the two decades after Appomattox saw them engaged in conducting a post-mortem on the past from the standpoint of the outcome of the Civil War. Along with these main currents of historiography went minor eddies and side currents. Reflecting a European fashion, Prescott, Motley and Parkman demonstrated that History might also be literature. They were assiduous in research, but their principal purpose was to

treat the past as a pageantry of stirring incidents and dramatic personalities. The writings of this group, however, were little concerned with the central themes of American development.

The present school of History in America, the so-called scientific school, dates from the eighties of the last century. Its rise synchronized with the expansion of the natural sciences and the growth of the scientific spirit in all fields of human inquiry. As in the case of the other social studies, many of its leaders were trained in German universities. Returning to America, they established historical seminars at Johns Hopkins, Harvard, Columbia and other strategic centers, from which went forth an increasing stream of young scholars to fertilize remoter academic communities and train up disciples of their own. The advent of the modern school marked a sharp break with the historiography of the earlier period. The sole concern of the new historians was to reconstruct a true record of the life of mankind without fear or favor. They strove to scrutinize the past in the same dispassionate way that a surgeon does a patient upon whom he is about to operate and to state their findings accurately and truthfully. With them the propagandist or the literary uses of History were entirely supplanted by the ideal of scientific detachment.

The fruits of their labors are embodied in an impressive mass of writings which form the firm basis of our knowledge of American History today. Methodologically, the system of research they inaugurated was a democratic one since it involved a microscopic examination of myriad data and required antlike activity on

the part of countless numbers of workers. The great exemplars of American historiography of earlier times —the writers of full-length histories, rapidly yielded ground to the masters of the monograph—to those who knew some fragment of history supremely well, for no longer could intuition or a vivid imagination be allowed to fill a gap which might be closed by intensive research. The comprehensive histories characteristic of the new age have taken the form of collaborative enterprises by specialists, or have been fashioned by skilled joiners who fitted together the bits of new truth scattered in a hundred articles and monographs, or have represented the joint efforts of bands of hired researchers directed by captains who applied to historical scholarship the hustling methods of modern business.

Equally typical of the new era was the attention given to making available sources and records hitherto uncollected or unknown to the scholarly world. This was indeed a farsighted program, to which governmental agencies, libraries, historical societies and private individuals lent a helping hand. Rare documents were reprinted, or reproduced through the photostatic process; important collections of manuscripts were put into type for the first time. A guild of historical experts grew up whose standards of editorship were so carefully maintained that textual criticism has played a comparatively small part in American historical research. Their services were supplemented by the compilation of innumerable bibliographies, indexes, calendars, archival guides and bibliographies of bibliographies, all designed to suggest to the seeker other possible sources of information.

The founders of the modern school devoted themselves mainly to political, constitutional and military History. There was no inherent reason why this should be so, for their highly refined methodology might have been turned with profitable results to other phases of the human past. But they worked in accordance with the best European traditions, and by exploring carefully the evolving political framework of society, they disposed of a whole series of problems which have touched the interests of later historians at many points. It is no reproach to them to say that the studies they produced were primarily descriptive or systematic in character, little concerned with the hidden motivation of events. In this respect they were doing for the subsequent development of History what the pioneer workers in the natural sciences did for their successors.

III

As might be expected, the modern school of History has itself been subject to transforming influences similar to those which in other times caused the outlook of scholars to change from generation to generation. In his presidential address before the American Historical Association in 1900, Edward Eggleston was already demanding a "New History"; James Harvey Robinson reiterated the plea with much cogency and persuasiveness in a volume bearing that title in 1911; and more recently the same idea has been presented to the younger members of the profession with something like missionary zeal by Harry Elmer Barnes. These recurrent expressions of dissatisfaction have led

to considerable misunderstanding outside the ranks of the historical guild. Not even the most active dissenters have expressed any wish to discard the basic ideals which animated the founders of the modern school, such as thoroughness of research, rigorous objectivity and accuracy in the statement of results. Their quarrel has been, rather, with the restricted range of interests of the older historians and, to some degree, with certain alleged shortcomings of their methodology. The dissenters have by no means won the field; the battle is being waged hotly on all fronts; but that they will meet with eventual success seems assured by the new social and intellectual circumstances in which society finds itself in the twentieth century.

Contemporary experience has emphasized as never before the importance of economic and technological factors in the life of man as compared with the political. The growth of gigantic business enterprises, the vast accumulations of capital, the deeply intrenched labor movement, the increasing dependence of society on science and invention, the dominance of economic questions in domestic and international politics—facts like these have caused historians to revaluate the materialistic forces in the life of mankind. A few scholars have frankly become economic determinists; all have been inclined to move such human interests as food, shelter and clothing nearer to the foreground of attention. In the light of such considerations political rivalries and partisan intrigues seem but shadow-symbols of greater struggles going on somewhere behind the screen, significant chiefly as indicative of these mightier forces. The historian of the new school is on

a still hunt for these underlying forces, for he believes that if he can find them he will have the key with which to explain the motivation of events at a given time. Political History may perchance furnish him with some useful clues, but it is only as a means, not as an end in itself, that it continues to engage his attention.

Of course, the historian is always in danger of reading into the past motives that were not actually present or active. Certain modes of conduct are peculiar to the growing complexity and artificiality of our civilization; others seem generally characteristic of men in their behavior as social beings. The historical student needs constantly to be on his guard: he must be willing to discard a clever or novel interpretation for one which conforms to the known circumstances of the period he is studying. Nevertheless the path to understanding lies in the direction of seeing the past with ever fresh vision. New insights often make it possible to strip the past of the rationalizations of motive and desire that may have paraded, for example, under such garbs as religion or dynastic glory or national patriotism.

The new appreciation of economic motivation in human conduct has been accompanied by a realization of the part that men in the mass play in history. If modern science and technology are based on the importance of common things, modern society may be said to rest on the importance of common people. The older History was essentially snobbish and exclusive, paying no attention either to the "Unknown Soldier" or the nameless civilian. The proponents of the newer view maintain that History must embrace all sections of the population, poor as well as rich, women as well

as men, the masses as well as the classes. Indeed, so many of the significant movements of the past have had their origins in obscure places (and none of them presumably has operated in a vacuum) that the Great-Man theory of history shows signs of being deflated in favor of one which views the Great Man as merely the mechanism through which the Great Many have spoken.

The historian's point of view has been further affected by the rapidly shrinking dimensions of the world. This has led to a new appreciation of the essential unity of mankind. For a century or more scholars, writing with strong nationalistic prepossessions, have dwelt upon the differences between peoples, stressing constantly *national* policies, aptitudes, aspirations. The events of our own day are causing students to think more in terms of similarities and common traits. They are asking, To what extent do nations act alike? rather than, In what respects may they be regarded as peculiar to themselves? As a result, one of the engrossing interests of the historian is coming to be the international movement of ideas, manners and institutions, whether in the field of industrialism, political behavior or religion. In looking back over the past it is clear that nations have never been independent entities except in a very restricted sense. Even the "splendid isolation" of the United States, with its advantages of geographic aloofness, has been largely a myth. As Professor Haskins pointed out in his presidential address to the American Historical Association in 1922, "Ireland has a potato famine in 1848, and Boston has an Irish mayor in 1922. Karl Marx and Engels publish their Com-

munist Manifesto in this same 1848, and two generations later Bolshevism appears in the lumber camps of the Pacific Northwest." The slavery problem has been exhaustively treated as an American problem; but its relation to the world-wide movement for abolition is as yet little understood, though it is clear that the United States lagged behind the progressive European countries and was even out-distanced by the "backward" republics of Latin America.

It remains to be added that the new growths in the vineyard of History have been due, in no small part, to cross fertilization from other fields of social investigation. In America economics, political science, sociology and History became professionalized subjects about the same time; and though the urge to intense specialization tended to raise barriers between them, in the course of time there was a certain amount of interpenetration and exchange of experience. In this process History has been notably indebted to economics; less so to political science because of the early preference historians showed for political subject matter. The influence of sociology is perhaps best seen in the growing attention given to such matters as the historical aspects of immigration and to the part played by religion and social reform in American history. In the field of World History such subjects as anthropology, ethnology and archæology have greatly enriched our knowledge of life in the past. As the historian has become more interested in *Kulturgeschichte,* he has similarly derived much value from the historical work performed by specialists in branches like the fine arts, literature, education and science.

This account suggests that much of the progress of History in content and point of view has been due to impulses and pressures from outside. That this is in some measure true cannot be denied, nor can it be gainsaid that the new developments have often been frowned upon by leaders of the profession. The first important work in the field of American economic history was performed by men who counted themselves economists, not historians; the first important American critique of the economic interpretation of History was likewise the work of an economist. The modern point of view in regard to the American Revolution receives much of its authority from the researches and writings of a Philadelphia lawyer. When the time came to write a dispassionate History of the Civil War and Reconstruction, the task was undertaken, not by a trained historian but by a retired captain of industry. The first man to project and begin a comprehensive *Kulturgeschichte* of America was an ex-Methodist clergyman, and the man who has piled volume upon volume of a *History of the People of the United States* first won his spurs as a teacher of civil engineering. There may be a moral here for those historians who at the present time view with indifference or hostility the impingement of new ideas on their sacred precincts.

IV

History, strictly speaking, has no content of its own: it is a method of inquiry. History is always the History of something, not a study apart. The founders of the modern school, as we have seen, applied the his-

torical method to government and politics. Gradually its scope has been broadened, so that today History is becoming concerned—in the hands of some, is already concerned—with the totality of man's experiences in the past. No aspect of these experiences can be safely neglected, for there is nothing man has thought or done or hoped or feared that has not left its mark in some manner on the life of society. Thus History is as many-sided as life itself. The historical point of view has far-reaching implications for scholarship in all fields. It enormously enlarges the range of observed phenomena, gives a sense of the relativity of present forms and suggests the forces at work in contemporary society.

Nor would History disappear as a separate discipline if the scholars in the various fields of knowledge should work out their own specialized histories. A collection of the histories of art, law, religion, etc., would not constitute a History of mankind; the social process as a whole would still remain to be articulated and explained. History is one; and if scholars at times find it convenient to isolate certain threads for intensive study, it must not be forgotten that it is merely for the sake of convenience and that these several strands are tightly woven into a common pattern that is really indivisible. Like the historian, the sociologist is also interested in explaining the past, but he has not the historian's preoccupation with time-and-place relationships, being interested (as I understand it) chiefly in generalized descriptions of social behavior and in the evolution of successive types of society. The historian and the historical sociologist complement each other;

their sympathetic coöperation is to be desired from the standpoint of the interests of both fields of study.

The acceptance of this broader conception of History will sooner or later necessitate far-reaching adjustments in regard to the equipment for research work. Editors and compilers of documents will have to expand their operations into the nonpolitical departments of social conduct, so as to include business papers, religious records, the minutes of reform bodies and the like. The problem of selecting representative documents and anticipating the varied interests of investigators will under these circumstances be infinitely more difficult than ever before, and students will be compelled to do proportionately more work in manuscript collections. This, in turn, will impose on research libraries the burden of broadening their program of collecting source records so as to embrace the multifarious aspects of human life in the past. A beginning has been made with the organization of special historical collections dealing with business, transportation, religious denominations, agriculture and similar interests; but these collections need development and many important domains of human enterprise remain untouched.

How can students be trained in our graduate schools to deal competently with the enormously expanded content of History? This basic problem has received little or no attention from those who occupy the seats of authority; for the most part, graduate instruction continues to be organized along the lines laid down a generation ago. Much hard, careful thinking will be necessary, and a considerable amount of ex-

perimentation, before a satisfactory solution can be reached. So far as the student of American history is concerned, he must, in addition to his present preparation, be familiar with all the great ideas and movements that have transformed the modern world and America as a part of it. All students, whether of American or other History, must be better rooted than at present in the methods and points of view of the related social fields, including psychology, and possess a good working knowledge of statistics. Besides they ought to be encouraged, if not required, to range widely in science, literature and the arts. The historian of the future is evidently a creature not to be envied, and the doctoral examinations of the next generation may well be "weltering fields of the tombless dead."

V

It is an ancient reproach, still echoed in many a luckless schoolroom, that History is only an exercise in the memorizing of dates. The taunt would be better founded today if historians were charged with being too factual-minded. All conquest of the unknown begins with the discovery of facts; and in the field of History this process is, in the very nature of things, a continuing one. Yet History would be a barren subject indeed if it never advanced beyond the attainments of the catalogue and the dictionary. It cannot be denied, however, that many historians fail to show in their writings any growth beyond their graduate apprenticeship, and that even the works of seasoned scholars too often show traces of what might be called the "Ph.

Disease." It was in reaction against this condition of affairs that the late Theodore Roosevelt—not then foreseeing that he would sometime become President of the American Historical Association—wrote to his friend Sir George M. Trevelyan:

We have a preposterous little historical organization which, when I was just out of Harvard and very ignorant, I joined. . . . After a while it dawned on me that all of the conscientious, industrious, painstaking little pedants, who would have been useful people in a rather small way if they had understood their own limitations, had become because of their conceit distinctly noxious. They solemnly believed that if there were only enough of them, and that if they only collected enough facts of all kinds and sorts, there would cease to be any need hereafter of great writers, great thinkers.

There can be no doubt that a widening chasm has been created between the professional historian and the reading public because of the devotion of the former to the unending task of gathering what Roosevelt called "bricks and stones." An eager public acclaim greeted the volumes of Bancroft, Motley and Parkman as they issued from the press, whereas an epochal historical work passes unnoticed today unless mayhap it be crowned by some prize award. The public still reads History, but prefers easy nourishment in the form of syntheses and "outlines" prepared by persons who, as someone has said, write "without fear and without research." The historian's difficulty is partly one of literary style, but is perhaps even more largely the result of what might be called an occupational complaint.

Even within professional ranks many signs indicate a growing conviction that specialization to be fruitful must be fertilized by generalization. Perhaps the most striking evidence of this belief has been the revival of interest in the subject of historical laws. Some scholars blandly dismiss this interest as a twentieth-century reincarnation of the early-nineteenth-century preoccupation with the philosophy of history—a recrudescence of ancient superstition, as it were. If this is true, the fact would appear to illustrate a tendency of historical phenomena to repeat themselves, which these very critics, under other circumstances, would be the first to deny. It is only fair to say that the analogy is more apparent than real; for the present-day speculation rests upon a vast accumulation of objective data not before available; it does not aspire to answer the riddle of the universe; and it is being carried on, not as was the study of the philosophy of history by poets, philosophers and theologians, but by historians of established reputation.

In his presidential address of 1908 before the American Historical Association Professor George Burton Adams declared his conviction that "the events with which it [History] is concerned have been determined by forces which act according to fixed law, and that most of the objections which have been urged against this view are due to misapprehensions, or incomplete reflection." A later president, Professor Edward P. Cheyney, in 1923 courageously supported his adherence to the same doctrine by a tentative formulation of six historical laws. "I do not conceive of these generalizations," he stated,

as principles which it would be well for us to accept, or as ideals which we may hope to attain; but as natural laws, which we must accept whether we want to or not; whose workings we cannot obviate, however much we may thwart them to our own failure and disadvantage; laws to be reckoned with, much as are the laws of gravitation, or of chemical affinity. . . .

Credentials quite as respectable and much more numerous might be offered in support of the opposite position. The controversy turns, in first instance, on the question of what is the proper province of the historian; whether History should concern itself only with unique and hence unrepeatable phenomena, or whether it may not also be concerned with studying the underlying forces and influences that condition social growth and which, by their very nature, seem to be constantly operative. The one point of view, pushed to its extreme, would give an episodical account of man's development, a mere sightseer's report of the surface of the past. The other, if carried to its logical limits, would yield a speculative, theorized interpretation so meagerly stocked with evidence as to render dubious its claim to the name of History at all. But neither group would accept such statements as fairly representing their aims; nor can they be said to do so.

As a matter of fact, the two points of view are not mutually exclusive. It would seem folly to deny that there are two aspects of the history of man. One consists of the exceptional or extranormal happenings; the other of the common or persistent factors. There is room for the study of both: the desirability of preserving the historical uniqueness of events or person-

alities need not preclude the quest for fundamental continuing forces and conditions, for irresistible tendencies and cyclical variations. A father of the Church once described the Holy Scripture as being at the same time a deep ocean in which the leviathan could wallow and a shallow pool in which an infant might play. Without suggesting which is monster and which babe, one is warranted in affirming that History is a large enough sea for both to bathe in.

If it be said that the assumption of the reign of law in History is unscientific, who can say that it is more scientific to assume that the development of man as a social being has been casual, fortuitous, uncontrolled by law? One hypothesis would appear to have as much scientific validity as the other. Plainly the jury requires further evidence before bringing in a verdict; and meanwhile a provisional sentence of "hard labor" imposed on both parties to the suit would greatly assist in advancing our knowledge as to the central issue involved.

For the immediate future, as the historian comes to occupy himself more and more with the life of the people and his interest is increasingly fixed on mass movements and emotions, the attention addressed to the discovery of historical laws is certain to grow greater. The difficulties that lie athwart the seeker's path might well deter the stoutest heart because of the profuseness and complexity of the data to be analyzed and the impossibility of establishing control conditions. Yet, as Professer Cheyney has suggested, the laws that govern the progress of human affairs should be no more difficult to fathom than, say, the laws that govern the

winds and the tides; and no one doubts that these can be reduced to scientific statement.

It has been urged that if or when the historian discovers his laws, they will turn out to be sociological laws. "The voice is Jacob's voice, but the hands are the hands of Esau." Should this prediction come true, the result will, from a scientific point of view, be immensely reassuring. Social science will be merely repeating the experience of natural science, where workers in different fields (as recently in the exploration of the atom) often arrive at the same results and serve as a check on each other. Seekers for truth will hardly quarrel over the credit of discovery. Methodologically the law in question will deserve to be called "historical" in so far as it was revealed by the technique used by the historian; it will be equally entitled to be known as "sociological" to the extent that it was discovered by the procedures of the sociologist.

VI

The question of whether History is a science has long been a favorite subject for disputation among dialecticians in the social fields. Yet the issue seems simple enough. If the term is confined to subjects where the phenomena operate in accordance with fixed law, History has not yet established its right to the label. If it attaches only to subjects in which the conclusions can be tested by experimental verification, obviously History is not so to be classed. But if the term may be applied to fields in which the methods of inquiry are critical and objective and the results win a consensus of

acceptance by trained investigators, then History deserves the name as much as any branch of physical science.

The critical methodology which obtains in the field of History began in Germany with the work of Niebuhr and Ranke in political History, Baur and the Tübingen school in sacred History and A. F. Wolf in classical philology. It has been refined and elaborated by students since then and has formed the subject matter of scores of important treatises in divers languages. In general, the principles of evidence applied by the historian resemble those employed by a court of law. Did the witness tell the truth? Did he possess a conscious or unconscious bias? Was he capable of observing fully and accurately or judging correctly? Do his words properly express the thought he intended to convey? Did he write down his observations at the time or in later years? Yet the lawyer's task in cross-examining his witnesses is simple in comparison, for the historian in his work combines the functions of detective, prosecuting attorney, lawyer for the defendant, judge and jury.

The results attained by this procedure have been so valuable that certain of its deficiencies usually pass unnoticed. One is the almost exclusive attention given to documented facts. When political History was the absorbing interest, this made little difference since major political decisions were usually found in the form of statutes, decrees, treaties, constitutions and other formal pronouncements and were, moreover, likely to find mention in the personal papers of the time. But with History becoming socialized, reliance

upon documentation often gives a misleading emphasis. So long as the stream of everyday life flows quietly along, it makes little mark on the annals of the time; it is only when it threatens to dry up or overflow its banks that its behavior is likely to attract contemporary notice. The sentiments felt most profoundly by a people, if in harmony with the existing social order, leave perhaps only incidental trace for the analyst, while the most casual exception may excite current attention and so assume exaggerated importance in the eyes of the later investigator.

There arises also the perennially baffling question as to whether the professions of a group as formally set forth correspond with their practice. Is Puritanism as a living religion in colonial New England better revealed by the Sabbath pulpit deliverances, of which we have ample record, or by the superstitious practices and irregular sex unions to which we know, from meager evidence, many of the lowly were addicted? The historical inquirer should not rely too piously on documentary testimony. Like the artist or the pioneering scientist, there are times when he must be willing to warm up his "cold facts" with his powers of insight and common sense and thus, by means of his constructive imagination, recapture the living past.

One other presupposition of historical methodology calls for a word of caution. The investigator is alert to the frailties and failings of the human beings whose records he examines, and these he discounts when constructing his narrative. But he usually assumes that the objectivity, to which he himself aspires as an ideal, is a quality which he possesses in fact. This is a dubious

assumption when, as historians know, the foremost thinkers in all ages were fettered by their times, by their social sympathies, economic wants or partisan bias, and when, as any psychologist knows, the finest intentions of conscious intelligence are likely to be ambushed by influences of which it may be wholly ignorant.

It is in the interest of scientific History to recognize frankly that historical "facts" are subjective in a double sense. In first instance they are entangled in the mental and emotional processes of the actors in the drama; at the next remove they are subject to the mental and emotional chemistry of the investigator's mind. Is objectivity, then, an impossible achievement? In an absolute sense, yes; for both the conception of a situation and the inferences of the historian are conditioned by his whole personality, which in turn is the product of his original endowment plus his life experience. But, relatively speaking, he may count on advancing the outposts of knowledge if he will subject his own mental processes to the same critical scrutiny that he does the source data with which he works.

Historians sometimes say that in undertaking a piece of research their minds are a perfect blank as to what they expect to find. An elementary knowledge of psychology shows that this attitude is one of self-deception. Even in the most matter-of-fact historical writing the process of inquiry is one of incessant selection, of determining which facts are important and which trivial; and the choices made rest upon certain criteria of importance and triviality which are implicit in the in-

vestigator's mind. It is these assumptions that historians need to drag into the open. In a work of historical scholarship the author might well devote his introduction to an exposition of his presuppositions; and in the learned journals the book reviewers might profitably direct a part of their fire at these same background considerations of the author.

VII

Statistics is a handmaid of History as it is of so many other branches of inquiry. The statistical method is a means of extracting the significant truths concealed in masses of numerical facts. Thus far historians have made only perfunctory use of diagrams and tabulations, but extraordinarily fruitful results have been attained by interpreting quantitative data in terms of maps. Analysis of the groupings of party votes in connection with the geographic distribution of cultural opportunities and of classes of property has yielded new insights, or confirmed surmises, as to the forces actually operating in politics. Professor Frederick J. Turner, perhaps our greatest master of this technique, was able, for instance, to reach the interesting, if disturbing, conclusion that

> The rough country, the least valuable farm lands, the illiterate counties tend, by and large, to be Democratic, as do the principal immigrant populations of the greater cities. The favored soil regions, the least illiterate areas, the most highly capitalized and industrial districts tend to be anti-Democratic, Federal, Whig, Republican, according to the area.

Detailed map analyses have enabled historians to penetrate behind the artificial barriers of political subdivisions and discover regionalisms that not only transcended state lines but divided states within themselves. The careful historian no longer speaks of the South but of the Souths, not of the West but of the Wests.

The possibilities of chartographic-statistical studies have as yet scarcely been plumbed. "History is an enterprise in space as well as in time," and as Professor Dixon Ryan Fox has recently pointed out, just as political History has benefited from map studies of successive physical frontiers, so social History offers an opportunity for plotting the succession of what might be called culture-frontiers. Where, at a particular time, was the public-education frontier, the bookstore frontier, the magazine-circulation frontier, the fraternal-organization frontier, the professionalized-sports frontier, the theater-supporting frontier? It is hardly necessary to say that much painstaking, fundamental research of this character will be necessary to give to social History the substance and validity that is rightly claimed for the work of the political historians.

The statistical method has its pitfalls, of course. The basic data often require critical evaluation. Thus, as is well known, the census of 1870 is very unreliable as a source of information in regard to Southern conditions. Moreover, quantitative measurements can properly be applied only to the outward signs, the external aspects, of social behavior, whereas complete understanding calls for inferences which are never based solely on numerical data. At most, statistics can only measure measurable things; and it would be highly

imprudent for the historical scholar to assume that only those motives and forces are significant that can be recorded by an adding machine.

VIII

Obviously a correct understanding of human nature is basic to the work of the historian. We have already seen that the student must apply psychological criteria in determining the value of his source evidence, and that it is desirable for him to bare his own mental and emotional prepossessions. A knowledge of psychology plays perhaps an even more important part when the historian comes to interpret the motives and actions of the men and women with whom his narrative is concerned. This is a thing apart from the dependability of his source materials. However well the surface appearance of an incident may be established or however plausible the contemporary explanations of the reasons for things, the inner meaning of events must, in final analysis, be explained in terms of the historian's own understanding of the motivation of human conduct.

Our age has a marked bias for mechanical explanations, and the tendency of the historian has been to reduce human nature to a formula. Historical interpretation is largely posited on the theory that mental processes are governed by reason, by intelligence, by conscious, deliberate, thought-out arguments. On the pages of the historian man is too often a mere logical machine actuated by self-interest. If modern psychology has done nothing else, it has disposed of this

simple conception of human nature and has shown that the mental make-up of man is, like life itself, a matter of infinite variety. Reason is important enough to set us apart from the lower animals; yet it is demonstrable that all but a very small fraction of our acts are attributable to instincts, urges and drives that we share, in varying degree, with the brutes. Instead of a reasoning machine the human animal is seen to be a complex creature of impulse, habit, emotional preference and autonomic reflexes, who occasionally directs his irrational desires to some intelligent end. Reason is but the arbiter among often unruly and conflicting impulses. Under the circumstances all that the historian can reasonably hope to accomplish is, first, to appreciate the intricate nature of man's mentality and, secondly, to seek to ascertain the motive or motives dominant in a particular situation.

The historians as a profession have as yet remained indifferent to the findings of the new psychology. Historical works continue to contain naïve speculations as to the springs of human action, or, if perchance the time-honored explanations are discarded, the writer is likely to fall into the opposite pit of attributing to others motives such as he recognizes in himself. It is, of course, true that in many instances adequate psychological data are lacking for a well-rounded interpretation of historical situations, but it is also true that from time immemorial historians have not hesitated to give what they might describe as a "common-sense" explanation of the same events. The real issue that is raised is whether, even in such doubtful instances, historians should not arm themselves with the new

hypotheses and knowledges of human motivation which modern psychology has laid bare. If to do this it becomes necessary, as someone has suggested, to join a Psychology-of-the-Month Club, the benefits assured should prove amply worth the pains.

In concluding this memorandum on the objectives and methods of research in History, one is impressed with the thought that the workers in the field are of many minds, that they disagree in certain important respects, and that they represent differing and often conflicting tendencies. This situation, it may be observed, is regarded with the utmost complacence by the historians themselves. If the subject of History is in a state of transition, they cherish the comforting assurance that it has always been in transition, and there are some among them so unregenerate as to hope that such may ever be the case. Sufficient agreement in regard to the fundamentals of method exists as to permit the widest possible diversity of interest in the choice of individual projects of research. There is no possibility that the foundations laid so firmly by the modern critical school will ever be discarded. Growth and change will be in the direction of the improvement of present procedures and the conquest of new areas of truth.

PHILOSOPHY

By

JOHN DEWEY

PHILOSOPHY

My theme is the claims and opportunities of philosophy as a subject of scientific study from the social point of view. It is not usual to regard philosophy as one of the social studies, and I can hardly do otherwise than express my appreciation of the intellectual generosity that inspired its inclusion in this series, and my sense of the wisdom of the policy. For it seems to me that philosophy has suffered, and possibly the social sciences as well, from the tradition that has isolated them from each other. The former has lost vitality and *actualité,* and it is conceivable that the latter might have gained outlook and perspective from a closer connection. I alluded to isolation as a tradition, and yet there was a time when both met in what was termed "Morals"—which was far from signifying moralistic ethics, for it covered the entire humanistic realm. It is, in any event, from the standpoint of integration suggested by the inclusion of philosophy within the scope of social studies that I shall approach the subject.

The inclusion while generous presents for consideration an embarrassing variety of problems and issues. The topic that obviously offers itself is that of social and political philosophy. For at this point the social sciences and philosophy obviously interpenetrate. The moment we pass from description of social phenomena

to an attempt at an evaluation of them, so as on the basic of reasoned conclusions to venture to state ends and ideals, that moment we pass from the strict area of science into problems of philosophy—such as the relation of facts and ideals, the nature of value, of criteria for judging it and so on. But perhaps just because this phase of the discussion is the more obvious, it may prove more helpful to try an indirect mode of approach, starting from considerations that on their face are remote from social phenomena. In approaching the theme in this more circuitous fashion, I shall deal with three affairs, namely, the history of philosophic thought; logic; and that more general phase of philosophy sometimes called metaphysics.

I

Perhaps the advantage of starting the discussion from the side of the history of philosophy is found in a seeming paradox. From one point of view, it can hardly be denied that philosophy viewed historically is a branch of human history, and as such furnishes material for the historian of human development in its most general sense. It affords from this point of view no isolated subject matter, but, like the phenomenon of religion, art or political institutions, is part of the general history of culture. Philosophy, even in its narrower and technical sense, gradually emerged from a background that no one can deny is the appropriate field of the anthropologist, while its whole course exhibits interaction with religious, scientific and political movements that fall within the view of the general historian.

On the other hand, existing histories of philosophy have not been written to an appreciable degree from this point of view. They have rather dealt with the history of thought as a self-enclosed field, within which the origin and evolution of special problems and conclusions may be traced independently of any contact with other phases of culture. Such a view is practically necessary as part of the preparation of the student of philosophy, especially when the student is expected to be himself a teacher of the subject. Nevertheless, the point of view, while legitimate, is partial; it needs to be supplemented by placing the material in its wider context of the movement of culture. The picture of philosophers that is drawn when they are thought of as dwelling in cells remote from the current of affairs is so one-sided as to be false. For the philosopher, even in his cell or study, still derives his material and his issues from the currents of life about him. It is of course true that there has been a continuous accumulation of philosophical literature, and that this literary tradition provides the philosophic student with material he must master to come into possession of the tools of his work. But this material did not originate in reflection upon philosophy but in reflection upon experience, and upon experience saturated with the colors of the social life in which it originated. Otherwise, it ceased to be philosophy and became academic scholarship, almost a branch of philology.

Consequently, my first proposition is that the history of philosophic thought, taken in its connection with other movements and modes of human culture, religious, scientific, political, economic, artistic, offers a

field of social research. The historian of philosophy must needs first of all be a historian and not just a historian of philosophy. In the degree in which he isolates his material, he loses the key to the significance of that which he studies. Any mode of thought, no matter how abstract in appearance, must have found an audience if it endured sufficiently to become part of the history of thought, and unless the historian knows something of the character of that audience and can judge of the nature of the appeal it made, he is without the clew to the meaning of that way of thinking. And to say that a thinker must find a response in his contemporary audience is to say that he must somehow respond to important needs of his time. Even in considering the nature of a philosophy we cannot get away from the biological idea of human activity as a response to an environment, in this case a reflective response to a social environment. We cannot understand an act, whether overt or reflective, unless we understand the medium in which it occurs and to which it is a response.

These general remarks raise a question. Just what is the distinctive material to which philosophy specifically responds? It does not seem to me that we have to go far in seeking an answer. The immediate subject matter of philosophic thought is the *beliefs* he finds current, especially traditional beliefs, those that are interwoven with institutional life in its diverse forms. It is not of course possible to draw any sharp line between philosophy and science. But one may say that in as far as a thinker occupies himself with phenomena *directly,* he is a scientist, and in as far as he

concerns himself with intellectual attitudes and ideas, of a fundamental sort, that have grown up about these phenomena, he is a philosopher. The scientist, that is, concerns himself directly with stars or with political institutions, as the case may be, while the interest of the philosopher is in the beliefs that have developed about the stars, the heavens and earth, as they enter into and operate in the whole scheme of human life, or in the beliefs that sustain institutions and give them their hold on human loyalty and purpose. The line of demarcation is not a sharp one because the scientist, in reaching his results from what seems to him to be a direct study of the phenomena themselves, cannot escape the influence of traditional beliefs and outlooks that have shaped his own mind and interests, and hence his modes of attention and interpretation; while the philosopher needs some direct observations of his own, some direct experience, with which and against which to check the body of current beliefs. But the direction and emphasis of thought in the two matters is so different as to enable us to distinguish two modes of thinking. Thus we may say that the business of philosophy is *criticism of belief;* that is, of beliefs that are so widely current socially as to be dominant factors in culture. Methods of critical inquiry into beliefs mark him off as a philosopher, but the subject matter with which he deals is not his own. The beliefs themselves are social products, social facts and social forces.

It is this basic fact which renders the history of philosophy a problem for social research; a fruitful and important problem at the present time precisely because so little has as yet been done with it. It is

hardly too much to say that the writing of the history of thought is still in its infancy. Accounts of this history as forming a special set of problems, set apart as falling within a technical field, are numerous and often excellent. But of the history of thought as an intellectual response to beliefs influential in various epochs and phases of human culture there is little. The causes of this situation are such that the blame cannot justly be put exclusively upon the historian of thought. Till very recently the material necessary for the use of this method has been lacking; in the important field of the history of science, it is still all too scanty. The history of thought as an object of social study depends upon materials that have to be supplied by the historian of other social fields, and until lately that material was not at hand. But I believe that this situation has now so changed that it is possible to make at least a beginning. This possibility determines the character of my primary suggestion—the history of philosophy is a genuine objective of scientific research in the social sciences.

The objective I have suggested is stated in vague and general terms. To be intelligible it ought to be translated into terms of more definite and limited objectives. Here again we have an embarrassment of riches. Every foot, yes, every inch of the way cries out for treatment from the social point of view. Anthropologists, archeologists and historians have, for example, brought to light in the past generation a vast wealth of material regarding early Grecian life and its connection with barbaric and even savage strata of culture. There is in such writers as Cornford, Murray,

Jane Harrison and others utilization of this material in the understanding of Greek thought; they have generously prepared the material in forms that call for philosophic appropriation and use. But the older tradition of isolation is far from having given way. There are still, I fear, many philosophers who regard it as an adulteration of the purity of philosophy to admit that there is an intimate connection between Greek philosophic literature and anthropological material.

While it is not especially to the point to pick out one period rather than another of the history of thought as an illustration of the need for social study, the Hellenistic and scholastic epochs suggest themselves almost irresistibly. For both of them present a development of philosophy when the latter was conspicuously a way of life bound up with the dominant tendencies of their eras. Histories of philosophy have always tended to fight shy of dealing with the religious movements that were contemporary with a philosophical development, in spite of the undeniably close connection of the two. Thus in the Greco-Roman period, our treatises give such separate treatments of Neo-Platonic, Stoic and Patristic theories that the student fails to realize the common atmosphere that enveloped them all. In consequence, Gilbert Murray's chapter on the Failure of Nerve in his *Four Stages of Greek Religion* gives more enlightenment as to the actual character of the intellectual movements of that time than do the standard works on philosophy. The history of the philosophy of this period cannot be truly written until all the movements are tied together; the possibility of effecting this union depends upon connecting all

of them with such social tendencies as are manifested in the revival of mystery cults, the origins of Christian Churches, the growth of the Roman Empire as an administrative and legal system, the relation of the Church to it, the development of literary studies and methods of exegesis at Athens and Alexandria, and so on.

After a period of long neglect, outside of Catholic circles, there are many signs of a revival of interest in scholasticism. Much excellent work has been done and much remains to be done in the narrower field of study of its literature. But hardly a beginning has been made in the larger field of the relations of this literature to the religious, political, artistic and economic phenomena of the period between the ninth and thirteenth centuries. In the later era of the disintegration of scholasticism and the sporadic revival of Pre-Aristotelian science (the preparation for the movement popularly known as the Renaissance) literary and historical students in other lines have done something, but historians of thought very little. And yet in this period of transition the foundations for that whole point of view we call "modern" were laid.

II

From these scattering superficial illustrations, I pass on to the second main topic, logical theory as a subject falling within the domain of social inquiry. The theme of history just mentioned furnishes a bridge. The dominant Aristotelian tradition in logic, a tradition which led Kant as late as the latter part of the eighteenth

century to regard the Aristotelian logic as a closed, complete system, is probably largely responsible for the neglect of study of the history of logical theories. In the nineteenth century the tendency to swallow up logic in epistemology, whether psychological or non-psychological, perpetuated this neglect, and diverted such attention as was given to the history of logic into alien and obscuring considerations. As a matter of fact, in spite of the dominance of Aristotelian orthodoxy, there was as much change and variety in the territory of logical thought as in those of ethical and metaphysical theory, and this history is practically an unwritten chapter—or rather an unwritten series of volumes. I can only say in passing, without any attempt at proof, that it is quite possible to disentangle the development of logic as an account of methods of inquiry and proof from the motivations and problems that have controlled the writing of the history of epistemology.

The logic of Aristotle was no formal logic in the modern sense; it was a reflection of his metaphysics and even more directly of his cosmology. It was a logic appropriate to the view of the world as a system of fixed qualitative kinds, like the species of animals and plants, of a closed physical or astronomical world formulated in terms of an arbitrary application of Euclidean geometry, and of a variety of qualitative movements that corresponded to the qualitative divisions of the cosmos. There are numerous problems of historical research in the career of the Aristotelian logic. One phase of the study concerns the transformation of the Aristotelian logic from an organon of mate-

rial truths concerning nature and man into a formal dialectic of dispute and controversy. The social connections of this problem are found of course in the history of the Church in its struggles to formulate religious and ecclesiastic doctrine to render them proof against heresies, and so as to afford an instrument of theological education.

Another phase of the problem is the discovery of what actually happened when the old conceptions of the cosmos disintegrated, and the supposed physical and astronomical basis of the Aristotelian system of syllogisms, classifications and definitions in demonstrative reasoning faded away. There is a genuine realm of logical development involved in this inquiry; for the new ideas in astronomy and physics could not have been developed except by the growth and use of new methods of investigation and testing. The extent to which this new logic was implicit in scientific investigations is scattered in the writings of the new scientific investigators, rather than formulated explicitly in logical treatises. But this fact is but another evidence of the futility of separating the history of philosophy from the history of other social changes. It signifies that the materials for the history of logic are to be found primarily in the records of scientific observations, experiments and calculations rather than in the books conventionally labelled philosophical.

A typically significant illustration of the importance of the theme may be drawn from Descartes. The hearer of philosophical lectures and the reader of philosophical books learns the Cartesian rules for

method, all about the *Cogito sum* and the ontological argument for the existence of God, and is perhaps instructed in the influence of such ideas upon the later idealistic movement. Incidentally he may learn that Descartes also developed analytic geometry. He is, however, unusually fortunate if he gets an idea of the central place of this mathematical conception in the whole system of Descartes, to say nothing of the connection of the new mathematical movement with the scientific problems of the day, and its influence upon subsequent science and philosophizing. Yet this connection is an indispensable factor in the development of working, as distinct from conventional, logic.

This reference to the history of logic is made, however, incidentally, and by way of connecting this topic with the one previously taken up. While consideration of logical theory as such cannot be severed from the history of the actual developments of scientific inquiry, I am especially concerned with logic itself in its relation to social phenomena. To put the idea that is uppermost in my mind in a summary form I will say that the confusions and uncertainties of inquiry, discussion and controversy in all the social sciences are reflected in the present state of logic as a philosophical discipline. It would be altogether too much to say that the confusions and uncertainties in the methods of the social sciences have their *source* in the confusions and uncertainties of logic itself; such a statement would reverse the way in which logic depends upon actual intellectual undertakings for its facts and ideas. But it is not too much to say that a clarified development of logical theory would give a much needed help to th

intellectual tools of the social studies: politics, economics, history, sociology and so on.

In entering upon a discussion of the relations of logic to social studies, as it is involved in the methods of social sciences, certain misconceptions may be avoided by stating in what sense "logic" is here employed. For present purposes, then, "logic" signifies a systematic intellectual statement of the operations of inquiry, test and formulation that enter into the discovery of conclusions having a valid claim to acceptance, to belief. The investigator in the recognized social sciences is certainly interested in the intellectual instruments he uses in investigation, interpretation and statement. While, upon the whole, he must forge these tools in the operations of inquiry, he cannot be indifferent to any contribution to this field which the logician may make. It will be recalled, for example, that it was interest in social inquiry and discussion that underlay the work of John Stuart Mill in composing his classic treatise on Logic. He was not himself an inquirer in the physical field, nor was he by first intention nor of pure blood a logician. Beginning with an interest in practical social reforms, he was compelled to take up political, ethical and economic theories, and was then forced back upon the question of the nature of the methods appropriate to dealing with social phenomena. Naturally, in the relatively undeveloped state of the social studies as compared with the physical and mathematical, he turned to the principles that seemed to him to be involved in the latter to procure instruction and enlightenment. Naturally then he became interested in problems of physical methods of

inquiry. Naturally, also, he was concerned to carry into his analysis and exposition the general philosophy of sensationalistic and associational psychology he had learned from his father—almost literally at his father's knee. But while these two considerations are highly important for his whole system, it is significantly true that the Sixth Book of his Treatise, on the Logic of the Social Sciences, not merely presents the culmination of his entire system, but also contains the reasons for the sake of which his entire logical inquiry was undertaken.

I cite this as an illustration of the interest which social students have in logical theory in connection with the foundation and framework of their own investigations. Mill's writings in politics, economics and ethics do not have the authority they possessed for an earlier generation, but this fact does not impair the illustrative value of reference to him. Any social student of social phenomena who goes far or deep is obliged to do something of the same kind that Mill did, though he usually does it piece-meal and implicitly rather than in the thoroughgoing and explicit way in which Mill undertook the task. If the social student is perforce concerned with logic as soon as he has to reflect upon the adequacy of his methods of inquiry and interpretation, it is equally true that the logician as such must include in his survey of logical problems, data and hypotheses, the conclusions of the social as well as of the physical sciences. Indeed, were it relevant to our purpose, it could be shown that one of the stimulating—and irritating—problems of much recent logical theory has been precisely the seeming discrepancy between the sciences that deal with physical material

and those that deal with social and historical material.

The problem is far from being settled. If I mistake not it is still a moot point among some of the social sciences whether their subject matter can be treated in abstraction from history or whether historical concepts intrinsically inhere in it. It is impossible to conceive of a more fundamental question being raised about the very nature of such subjects as economics and politics. For there are some who are convinced that the essential fallacy of the older or classic economic and political theory is precisely that they viewed their subject matter as reducible to abstract universal laws, holding that such "laws" ought to have been treated as inferences regarding tendencies characteristic of particular eras of history, and hence possessed only of a relationship and temporal significance.

We find another illustration of the coöperative reciprocal interest of logicians and social scientists in a phenomenon accompanying the rise of sociology and anthropology. In the period in which they began to take form, it was a commonplace of the prevailing logic of the physical sciences that "laws" are statements of uniform and unconditional uniformities in the succession of phenomena. This notion cut two ways. On the one hand, it eliminated the older notion of explanation in terms of an active force, agency or faculty lying behind the phenomena, and was thus part of the scientific purification that began in the seventeenth century. On the other side, it represented the endeavor to give a positive formulation to the most general conclusions of all physical researches and discoveries. It was inevitable, humanly speaking, that men

like Comte or Spencer, when they set out to reduce sociological phenomena to scientific form, should conform to the model set by current conceptions in physical science. They conceived, as a matter of course, that their task was to discover a uniform, unvarying, order of sequence among social phenomena. The result, with Comte, was the law of the three stages: everywhere in all matters, social phenomena begin in a theological stage, pass through a metaphysical stage and terminate in a positivistic—the latter being identical with the possibility of social science itself. With Spencer, the idea took the form of a generalized formula of "evolution," stating forms of unvarying succession through which each sort of social phenomena *must* pass.

Students who do not have a technical acquaintance with the literature of anthropology are sometimes disturbed by finding that there is an influential and growing group that rejects "evolution" as applied to their data. The real meaning of the repudiation and criticism is contained in what has just been said. The distinguished anthropologist Morgan put forth the idea of a uniform succession of stages of culture passed through by all races and social groups all over the globe: this single and uniform succession of stages constituted "evolution." Some peoples have got further than others, but none omits any one of the stages of evolution. Anthropology was thereby committed to studying all its material so as to place it in some compartment of the recognized order of stages. Comparative linguistics, comparative religion, institutional politics and law, while they did not originate wholly in

this conception, lent themselves readily to its influence. Comparison leading to scientific results was thought to be possible only because definite and uniform stages could be laid out.

It is an interesting problem for logical research to discover just the underlying conceptions of intellectual method which those anthropologists who have rejected this scheme of reasoning put in its place. But beyond indicating the existence of this logical problem, we are concerned only to point out the source of that "evolutionary" idea now so generally questioned—the implicit supposition that the very existence of science was bound up with discovery of uniformities of succession universally present among social phenomena, comparable to alleged uniformities in physical phenomena. To have denied, at one period, the existence of such uniform stages of succession would have seemed to be the denial of the possibility of any social science whatever. In spite of the acute criticism directed against the idea by some anthropologists, it still runs implicitly through the most widely known writers on mythology, cults and political and legal institutions.

I hope that even these few illustrations may indicate the extent to which the student of logic may find problems, data and hypotheses ready to hand in the social sciences, so that he may reasonably entertain a hope that the results of his own logical inquiries may be of some fruitful service to the workers in those fields. It is here more than anywhere else, I think, that the rôle of social and political philosophy—the point passed over at the outset—should be most significant. The work of philosophy in these fields, any more than

in the physical or biological, cannot rival that of the specialized investigator. If a philosopher attempts to deliver scientific conclusions in the strict sense of the word, that is, apart from direct study of factual data, his results are only too likely to be pseudo-science. But determination of intellectual foundation-concepts, and of the encompassing intellectual framework is another matter; it is an affair with which he is concerned, and in which he may render useful assistance. Social phenomena are after all *the* distinctively human phenomena and therefore those of the greatest import to man. While the statement may, accordingly, mark only a personal prejudice on my part, I cannot refrain from saying that it seems to me that the beliefs most appropriate to receive the attention of philosophic students, and the most rewarding of study, are those of the social sciences, in spite of the vogue of physical and mathematical sciences, which just now exercise such a hypnotic influence in philosophy.

III

Thus far we have been considering connections, cross-fertilizations they might be called, between logic and the social sciences. Leading ideas, controlling concepts, principles, theories, play such a rôle in all organized method that it is impossible, however, to make a sharp separation between logic and general philosophy. For these large ideas, within the scope of which social theorizing has been carried on, have as a rule been derived, consciously or tacitly, from some comprehensive view of the universe and of man. Here is

an enormously rich field of research. There are but few works known to me that trace the philosophical origin of the ideas which have in the past so largely governed special social studies by means of studying the intellectual framework within which the latter are carried on. The philosopher has not as a rule traced the ramifications of his ideas in economics, politics, the writing of history, jurisprudence, or the development of educational theories; workers in the latter fields have often taken current ideas ready-made, and omitted to ask for their source in prior philosophic speculation, and to consider the degree in which they are affected—or infected—by that origin.[1]

Problems for research that fall within the field of the diffusion of philosophic concepts through the social sciences are indefinitely numerous. There are almost innumerable topics in one realm alone, one that is closely allied with logic. Under the influence of the Aristotelian tradition and the older interpretation of the method of Euclidean geometry, subjects were regarded as scientific only when they rested upon ultimate axiomatic, or indemonstrable, first truths, eternally and universally true and carrying their truth in their immediate rational self-evidence. The effect of this conception was to lead social thinkers to strive for deductive and quasi-mathematical systemization. Here is an important theme for investigation. Even more important is the way in which leading ideas, having a

[1] I have in mind as an exception such a work as Bonar's *Philosophy and Political Economy in Some of Their Historical Relations*. London, George Allen & Unwin, Ltd. New York, The Macmillan Co.

temporary value in stimulation and direction of reformatory effort to remedy immediate evils or promote immediate social causes and policies, were erected into eternal and unqualified truths, good at all times and places. It is only comparatively recently that it has been perceived that all such general ideas and principles are in logical import but *hypotheses* and are to be treated as hypotheses are used and tested in other fields of inquiry.[1]

Merely to trace the conversion of working hypotheses into absolute and immutable truths, and to follow out the effect of this conversion in the fields of law, politics, economics, etc., would in the abstract prove rather barren. But if it were employed as a clew to discovery of the particular desires and interests which have dominated movements at various times, it would develop into a series of significant inquiries. We are, for example, only just beginning to recognize the extent in which the whole British empiristic philosophy was developed as a method of criticism of institutions, political and ecclesiastical. It became the working creed of the "liberal" school, because it was originated by Locke in order to provide an analytic method of attack upon beliefs connected with institutions he desired either to abolish or to reform. Then there is the use

[1] Delaisi's *Political Myths and Economic Realities* contains a wealth of material for the curious student of philosophy. The use of the word "myths" is of course deliberately pejoristic. But such words as we have been employing, "general ideas, principles, first truths," may be readily substituted. The consequences of the failure to recognize that they rightly function only as hypotheses are expressed in the following words: "If the myth's existence were only justified by its *utility,* to change it would be a relatively simple matter. But once it is rooted among the 'immutable verities' it becomes sacrosanct." P. 43.

made by the utilitarian school of an individualistic and introspective psychology to establish a "scientific" basis for economics and politics. Another phase of the same general movement is the concept of "nature," as developed first in connection with the idea of laws in morals and government, then transferred to the treatment of rights, and afterwards retained by the utilitarians, in spite of their criticism of the natural rights theory, in the form of a native, original structure of wants inhering in every individual, upon which structure as a basis was built their whole science of economic activity. It would not be far-fetched to say that a reminiscent echo of the same idea is found in contemporary efforts to develop social theory from the basis of pure instincts. An important sideline of exploration are the religious connections of this concept of nature, its affiliation with deism and the notion of natural as distinct from revealed religion.

To elaborate this mode of research would, however, encroach unduly upon mention of the theoretic phase of philosophy, often termed metaphysics, in its connection with social studies.

Unfortunately for my purpose, the field in question is most difficult to present in such an address as this. But the underlying idea may be suggested by reminding ourselves that at all times one of the most perplexing problems of general philosophy, including logic, has been the relation of individual and universal; the discrete and the continuous; the immediate and the relational. The student of contemporary philosophy is aware of the extent to which, after a period in

which the problem was ignored or even contemptuously dismissed, it looms as the central and dividing issue. That the same question, in the form of the relation of individuality to collectivity, freedom to law, liberty to authority, is and has always been a central issue in social and political thinking, goes without saying. Just here is assuredly a problem in which the interests of the most formal and seemingly abstract branch of philosophy and those of social studies converge to a common focus.

I do not propose to discuss the problem itself, but I wish to call attention to an issue regarding the ultimate basis and nature of philosophic method that is involved in it. Shall philosophy set out from and with the macroscopic or with the microscopic; with the gross and complex or with the minute and elemental? The issue stated in this bald form does not mean much. But social phenomena constitute what I mean by the macroscopic. They are the large, the largest, most inclusive and most complex of all the phenomena with which mind has to deal. They also present the problems with which thought occupies itself in their most direct, urgent and practical form. Is philosophy to start with and from such objects, or with the results of special analyses, mathematical, physical and biological? The problem crucial for philosophy itself is not without fundamental import for the special social sciences. One type of answer to it indicates that social phenomena involve certain categories that are distinctive and unique, and hence not to be resolved into the physical, biological or psychological. The primary problem of method is then to discover just what are these distinc-

tive social marks and categories.[1] An answer in the other sense commits the social student to an effort to reduce all social phenomena to the terms of physical, biological or psychological science. I do not see how any problem can be more far-reaching in its implications.

The bearing of the issue upon philosophical method is equally important. The whole issue of the place and value of empirical method in philosophic thinking is involved in it. It is not too much to say that the heart of the procedure usually termed "rationalistic" is found in the notion that entities or objects of a simple and ultimate nature, discovered by thought, are the "reals" in terms of which philosophy must understand and explain all complex and macroscopic phenomena. In this connection we must not limit the content of "rationalism" to the movements of the seventeenth and eighteenth century that commonly go by that name. It includes also the contemporary movements that finally fall back upon mathematical subsistences; that base themselves upon essences, or that build upon ultimate "sense-data." The issue also concerns the value of the traditional British empirical school. For that school defined experience not in terms of direct and macroscopic phenomena of a social order but in terms of ulterior simple unitary elements, sensations, feelings, ideas. So complete is the identification of "empiricism" with this point of view, that the mere suggestion of the possibility of empirical philosophy of a different type is hard to grasp. But apart from words,

[1] See an article by the writer in the *Monist,* April, 1928, "Social as Category."

there is the possibility of a kind of philosophic enterprise that accepts phenomena in gross; namely, the phenomena of social interactions, as real in their own right, and as the fullest manifestation of the nature of things accessible to the human mind; and that finds in these gross phenomena the clues to the formulation and solution of the other problems with which philosophy is concerned.

From this point of view all intellectual distinctions and classifications proceed from experience in its direct and large social mode; they are instituted for the sake of the control or direction of these common and pervasive phenomena, and they ultimately pass for test and verification back into the direct complex of phenomena from which they were derived. From this point of view, the ultimate source of all philosophic fallacies and errors is conversion of a temporary abstraction from the complex gross scene into a permanent and fixed isolation. It is impossible to follow the idea further on this occasion. But, it may be repeated that the worth and validity of the empirical method as over against the rationalistic (and these are the two forms into which in some way all philosophic divisions resolve themselves and from which all philosophic conflicts arise) stand or fall with the decision of this issue. Moreover, to adopt the macroscopic or social standpoint as a working philosophic hypothesis is to be committed to a standpoint from which all philosophic problems demand revision and restatement.

I may perhaps best conclude by saying that the inclusion of philosophy among the social studies as a theme for research not only evinces liberality of mind,

but contains, at least by way of implication, intellectual consequences with which I am in most profound agreement. Indeed, all that I have said, under the captions of the history of thought, logical theory and general philosophy, is but an indication of some of these consequences. I believe that at times philosophy has had direct and immediate social connections; that the failures of philosophy have been largely due to failure to perceive and state these connections, and that the over-technicality of philosophical systems, with the remoteness from common understanding thereby induced, the undue emphasis upon intellectual gymnastics and dialectic at the expense of bearing upon life, have the same source. The divorce of philosophy during the last few centuries from the sciences is now much deplored, and it *is* deplorable. But I believe that the road of alliance of philosophy with the physical and biological sciences is not direct but by the way of the social sciences. I look for a genuine renascence of philosophic interest and service in the degree in which this primary affiliation is held in mind.

Large and general hypotheses have always preceded fruitful special inquiries into detailed matters of fact. At a later period, the original hypotheses are so revised and discarded on one hand, and so incorporated into the systematic body of scientific facts on the other, that they are readily ignored or even spoken of with contempt as mere metaphysical vagaries. But none the less, the specialized and finally verified scientific system found its origin in precisely such general ideas. Our present scientific outlook and achievements has its source in the philosophical speculations of the seven-

teenth century. The scientific revolution now so far along had to wait upon the birth of new intellectual points of view, new conceptions of the structure and operations of nature. Accumulation of specialized and detailed facts within the old intellectual framework, subjected to the theoretical conditions it imposed, signified merely the building up of a more firm structure of error that had to be battered down. The new and revolutionary ideas had inevitably first to be presented in a highly general and speculative form. Until the ideas were used, there could not possibly be in existence that body of facts that would purify and test the ideas and reduce them from speculative to factual form. It is a favorite idea of mine that we are now in the presence of an intellectual crisis similar to that of the seventeenth century. Then the crisis concerned the free creation of new ideas regarding physical nature, ideas that formed the points of departure for new ways of observing and interpreting physical phenomena. Now the crisis concerns the initiation of new hypotheses regarding man, regarding the nature and significance of those human associations that form the various modes of social phenomena. What philosophy did three centuries ago for physical inquiry, it now has the opportunity of doing for social life.

POLITICAL SCIENCE

By

CHARLES AUSTIN BEARD

POLITICAL SCIENCE

I

Ever since Newton discovered the law under which the stars swing in their orbits imaginative thinkers have toyed with the possibility of reducing history to a science and, thus, automatically, the scattered and disjointed operations of mankind grouped for convenience under the head of politics. Comte, Buckle, Darwin, and Marx each gave a profound impulse to this great hope. The spirit of the modern age and the discoveries of innumerable specialists, showing glimpses of order and law in various phases of human affairs, lend countenance to the ambition. As Henry Adams said in his neglected letter to the teachers of history in 1894: "Every professor who has tried to teach the doubtful facts we now call history must have felt that sooner or later he or another would put order in the chaos and bring light into darkness. . . . The law was certainly there and as certainly was in places actually visible, to be touched and handled, as though it were a law of chemistry or physics."

No one can deny that the idea is fascinating—the idea of subduing the phenomena of politics to the laws of causation, of penetrating to the mystery of its transformations, of symbolizing the trajectory of its future; in a word, of grasping destiny by the forelock and bringing it prostrate to earth. The very idea is in

itself worthy of the immortal gods and every effort to press with it to the center of things seems to partake of the divinity that shapes our ends. If nothing ever comes of it, its very existence will fertilize thought and enrich imagination. No one who rises above operations that can be handled with an adding-machine can think long and intensely without coming under the shadow of its influence.

But when we survey the state of the materials with which we must work and take stock of our minds as instruments for the task, the business becomes appalling. Historically speaking, treatises on politics fall into two broad groups: those which aim at describing some phase of statecraft with exactness and those which are designed, more or less consciously, to attack or defend some order of political affairs. The greatest works in politics fall under the latter head; at bottom they are efforts to justify to mankind some political arrangement already constructed in fact or to discredit it in the name of some adjustment held desirable by the authors. Consider the writers of the past two hundred years coming under this head: Milton, Locke, Harrington, Hobbes, Rousseau, De Maistre, Jefferson, Madison, Hamilton, Paine, and Calhoun, for example. Is there one of them who can be called a scientist in any sense of that word? Is there one of them who even professed to be a disinterested seeker of truth, without ulterior ends, indifferent to consequences? Undoubtedly many of them made use of authentic facts and employed scientific methods, within limits, but all of them were attacking or defending or both—in short, rationalizing great passions into word patterns, using the

current verbiage, biblical, theological, and natural, uppermost in the thinking of their age and making selections appropriate to their predetermined ends. Hence the whole body of political literature which transcends compilation, annotation, and description may be safely put under the head of defense mechanisms, employing this term in no invidious sense.

If such is the state of our literature, what can be said of the state of our minds? Is it possible for any man or woman to arrive at maturity without collecting a magnificent body of convictions, prejudices, hunches, grouches, information, and misinformation which will discolor all light, no matter how pure, and distort all vision, no matter how firm? Natural scientists are always telling us that we can never discover great truth if we passionately seek what we wish rather than that which actually prevails. Given these two inescapable facts—our prejudiced minds and the necessity for disinterested reason in the pursuit of truth, the prospects for a political science are not very hopeful. Still we should not be utterly discouraged, for we know the dubious origins of science itself. Astronomy sprang from astrology, chemistry from alchemy, and psychology from primitive animism. Moreover, we know from the letters and memoirs of great naturalists that prejudices in their field have been scarcely less numerous and bitter than in the domain of the humanistic sciences. All of us must make our way amid encircling gloom.

After stating the hopes for a science of politics and some of the difficulties in the way of realizing them, we come to the task of trying to determine what form such a science must take, assuming it were possible to

create it. Obviously it could not be merely descriptive, representing some political situation already past or giving an analytical account of some existing order. Indeed, although many scholars seem to think that descriptive and comparative political writing may be done without reference to science or philosophy, I venture to express grave doubts as to the possibility of achieving even this simple undertaking. Historians have taken over from Ranke a clever saying that sounds well: it is the business of the historian to see things as they actually were. If I had time I believe that I could demonstrate the utter unreality of any such mental operation, except perhaps with reference to a situation so minute in time and space as to be without material significance. The past is invisible and when selections must be made we see what is behind our eyes. The idea of describing a past situation merely as it was in fact seems to me to be fruit of vain imagination. With respect to describing a present situation without philosophic implications, the case does not seem to be any more hopeful. Of course there are some cheerful thinkers who flatter themselves that they are describing some part of the government of the United States when they use the words of the Constitution or a statute, but that is confusing verbiage with reality. Reality cannot be described without philosophic implications and there is no political reality that is not becoming something else while it is under observation, which is not an organic part of an endless series. History is, as Croce says, philosophy and it is open at both ends. The thought is terrible to contemplate and those who cannot bear the intellectual burden

which it imposes had better stick to adding-machine work.

Having questioned the truthfulness of so-called descriptive work, now let us consider the possible form of a political science, as imaginable. First of all, it would have its roots very deep in the reality and verbiage of the past. It would be wide in its reach, taking in all forms and practices of politics. It would of necessity deal with the future, which is as real as the past if we but knew it; the more profound its penetration, the firmer would be its grasp upon the future and the longer the period of its prognosis. A genuine political science would deal with known tendencies projected in time; it would be in some indeterminate measure prophetic. If it deals only with what is past, and what is, and omits that which is becoming, then it is no thing at all, but merely a part of something. Postponing our laughter for a few moments more, let us consider the inevitable upshot of such a science, assuming that it is thinkable.

It certainly would deal with the future. Reasoning from the vast and cataclysmic changes of the past and from the tendencies of the present, it could scarcely escape prognosticating changes for the near future, greater changes for the more distant future, and something volcanic for the coming millennium, to pause on the brink of sanity. Such changes will of necessity, as Henry Adams points out, shake to its foundation one or more prodigious interests: the church, the state itself, property, and labor. The path of the future, as he continues, "can hardly lead toward the interest of all great social organizations. We cannot conceive

that it should help at the same time the church and the state, property and communism, capital and poverty, science and religion, trade and art." This is not fanciful. It can be illuminated by references to undeniable experience.

Let us assume, for example, the possibility of such a political science in Virginia in the year 1850. If it had been scientific and not merely descriptive (correctly speaking an impossibility), then it would have been compelled to place at the center of its prognosis the destruction of the slave system of this commonwealth. Could it have been safely taught at this University to the scions of the old aristocracy? To use another illustration. Let us assume a political science in Germany in 1910. In its prognosis would have appeared the overthrow of the monarchy, the establishment of a republic, a socialist president, a socialist chancellor, and other things highly unpleasant to the powers of the time. Would such a science have been permissible in the University of Berlin?

Now we may have the inevitable laughter. Of course such a science of prognostication is impossible. Nobody could foretell in October, 1928, whether Mr. Smith or Mr. Hoover would be elected President, and yet we are asked to plot the social trajectory of the United States until the end of the century. Our conclusions under this head must be few. All such prognostications are hazardous intellectual adventures, with the chances, perhaps a thousand to one, against correctness. Only those who foretell momentous changes will be right, and none of them will be acceptable in polite society. Those who are so acceptable will foretell smooth

things and hence be wrong, blind leaders of the blind. If so, this is awful to contemplate.

This is not all. Another Promethean dilemma confronts us. Assuming for the moment that the scientific prognosis could be made by any process, plotting the future trajectory with reasonable accuracy, then that which is plotted in the curve would be inexorable. The discovery would be of no use to us because we could not by any effort prevent or change anything in the prognosis. Hence what becomes of the hypothesis that by acquiring knowledge we can acquire some mastery over our fate? If we could get enough knowledge to make a science of politics, we should imprison ourselves in an iron web of our own making.

II

Hence it seems to be necessary to descend from Olympian heights and seek the desirable in the possible. What we can have is merely thought about politics, displaying varying degrees of breadth, depth, and intensity, or to put the matter in another way, intelligence applied more or less ardently and fearlessly to that aspect of human affairs which we call political. This looks fairly simple, but on close examination it becomes clouded with perplexities. If we are to consider the application of intelligence to politics, then we cannot escape an inquiry into the nature of the instrument we are to use; namely, intelligence. Indeed I hazard the assertion that what we need now in our field of intellectual endeavor is not more emphasis on the collection and compilation of data (although

the importance of that labor is not to be minimized) but rather a reconsideration of mind itself and the methods of improving it in relation to our chosen subject matter. Our customary procedure has been to assume that students and statesmen have minds as fixed entities and to concentrate on the amassing and arranging of objective materials for judgment. We have confused erudition and knowledge, addition and insight. It would not be amiss in the present age, therefore, to lay stress upon another aspect of our work; namely, intelligence. What is its nature? How can it be developed and enriched? What are the conditions favorable to its exercise on the data of politics?

What is intelligence? We have in this country a number of people who seem to think they can test intelligence, but when they attempt to define the thing they are testing they divide into warring camps. Mr. Spearman is right when he says that "in point of fact, this word in its ordinary present day usage does not possess any definite meaning. It can be readily made to comprise, no doubt, anything that was classically attributed to the 'intellect.' But commonly it is stretched to an undetermined distance further downwards. Neither its utterers nor its hearers appear to have behind it any clear idea whatever." He seems to be right also when he says that "with the brilliant exception of Ebbinghaus, not even one of their own authors appears to have been able to make any actual use of them."

Having disposed of his colleagues, Spearman then proceeds to an analysis of the word which ends in hopes, appearances, tendencies, and partial explana-

tions which leave the present observer as bewildered as before. Perhaps the most convenient way out is to accept the declaration of a Harvard professor to the effect that intelligence is what an intelligence test tests. Undoubtedly there is something in intelligence tests; but it is difficult to discover just what it is. They certainly reveal varying degrees of capacity to do definite things; they are useful for practical ends; their measurements may correlate very well with the ability to get along in the business of making a living. But I believe that we are in peril of using them to set up a standard of monetary measurement; the intelligence of people can be measured by their success in a country that worships success. It is extremely doubtful whether Jesus, Buddha, Socrates, Saint Francis, Ruskin, Tolstoy, and a veritable host of sages and benefactors could pass an American intelligence test or, if they could, come up to the correlated expectations of their examiners as indicated by their respectively graduated IQ's.

Discouraged by all efforts to explore intelligence by introspection, a new school of psychologists have given up the search and gone in for the study of behavior. Their labors have been highly useful, especially in clearing away rubbish. The leader of this school, Mr. Watson, tells us that the human infant is born "a squirming mass without instincts, without patterned behavior," and, I presume, without the thing called intelligence. Then Mr. Watson adds that "the chief difference" between this infant and his blood brothers the chimpanzee, orangoutang, and gorilla is his ability to learn how to talk aloud and to talk to himself, that

is, "to think or laryngate." Having pictured the arriving infant, Mr. Watson goes on to say that "if you take this squirming mass at birth you can build almost any kind of behavior patterns into it. In other words, we are environmental products. Now you can make of this product a religious mystic like Mrs. Eddy or a militant fundamentalist like Dr. Straton. You can make of him a play boy like the Prince of Wales, an austere unverbalized puritan like Mr. Coolidge, a Shakesperian pugilist like Mr. Tunney, an author like Jack London, or an actor like Mr. Sothern (which God forbid). There is almost no limitation to the ways we can shape him if we only start early enough."

Now there are some words in that statement which puzzle a layman like the present onlooker. Mr. Watson says that the "chief" difference between man and his arboreal brethren lies in his "ability" to talk aloud and to talk to himself, that is "think." Well, I for one would like to know what the other differences are, if any, apart from physiological appearances; and I venture to add that this ability to talk aloud seems an amazing, bewildering difference with innumerable implications for anyone who will let his mind dwell upon it for two or three weeks.

Another statement in Mr. Watson's thesis also puzzles me. He says that if you take the squirming mass at birth you can build almost any kind of behavior patterns into it. First of all that qualifying word "almost" disturbs, for me at least, the easy flow of the argument. Apparently Mr. Watson thinks or laryngates to the effect that we cannot do a perfect job of it, for some kinds of patterns will get into the

squirming mass in spite of our best efforts. Another word in this thesis also vexes my understanding. Mr. Watson says "you" can build almost any kind of behavior patterns into the squirming mass. If that means me, I beg to dissent, for I cannot do it. Moreover, one cannot always be sure that the behavior pattern forced into the squirming mass will not explode; Voltaire was educated in a Jesuit seminary. It seems very wise on the part of Mr. Watson to insert that word "almost" for it leaves room for indeterminate operations. I wonder whether he thinks he could make a Newton or an Einstein out of the squirming mass brought forth in a family celebrated for subnormality for three generations. If so, I should like to have him set to work at the business of transforming a newly arrived infant, male or female, into an Aristotle capable of understanding and forecasting the course of American political evolution.

The intelligence testers tell us that we have intelligence, at least, that some of us do, if we can pass the test, and Mr. Watson informs us that man has the ability to learn to talk aloud and to talk to himself; that is, to think or laryngate. Therefore, as a layman in this field I venture to suspect that men and women of maturity at least have in varying degrees something which may for convenience be called intelligence. Like everything else it cannot be defined, except in terms of something else; that is, in itself not at all. But for the purposes of this paper, I propose to define it as follows in the language of Ebbinghaus: intelligence is the ability to bring together "a multitude of independent concomitant impressions into a unitary, meaningful,

or in any way purposive whole." I know that this definition is exploded and rejected by all except one or two psychologists, but until they can make a better one, I shall continue to cling to this wreckage. It works very well when I apply it to a garage mechanic who insists on adjusting the carburetor of my automobile when the troubles lie in the distributor of the ignition system and also when I apply it to a sophomore essay in contrast to a chapter of Aristotle. Hence, wrong as it is, I shall let it stand as a hypothetical error useful for finite explorations. This definition besides describing what seems to be an operation implies the exercise of will power, intensity of concentration, and moral habits which cannot be tested by any intelligence tests known to the present onlooker.

Is this intelligence or ability the product of heredity or environment? Vociferous thinkers or laryngators, more certain of this slippery world than I am, assert that "we are environmental products." Equally vociferous thinkers assert in a ton of books that intelligence is inherited, at least almost entirely; hence family is nearly everything worthy of note. Of course none of these contenders hold that a potential Edison six months old placed in the tender care of Fiji Islanders would make any remarkable displays of intelligence on the way to the grave. Neither do they maintain that the best family of Virginia could transform a hydrocephalic idiot into Newton by surrounding it with the best of environments. It seems to me that there is something in both the heredity and the environment arguments, but how much I cannot discover by any sounding instruments in my possession. Indeed, the

more I think about the business, the more I am inclined to the view that the two things called heredity and environment are not separate entities at all, but are phases of some underlying and all-embracing reality. The speed with which my best garden roses run back into wild climbers when neglected gives me a lot of physical and mental trouble. The appearance of great minds among very ordinary families and mediocre minds among the best families perplexes me also. So I venture the conclusion that heredity and environment are locked in one vast embrace, evolve together, and offer no fissure except to the eye of illusion and controversy.

III

By what method must this intelligence operate on the data of politics? We are repeatedly told, the method of natural science. Now I do not wish for a moment to appear in the rôle of a critic; we cannot use too vigorously or too extensively this method, which has proved so fruitful in dealing with inorganic substances. There should be no relaxation of emphasis on the scientific mode of procedure. But I think we should be slow to assume that the analyzing and adding method of natural science is equally appropriate to human affairs and will prove equally fruitful in results. By way of illustration, I propose to examine briefly that method as admirably expounded by Mr. Herbert Hoover in an address to members of his engineering fraternity. "The engineers," he said, "have contributed a great purpose in the United States—a purpose that is applicable to all branches of public

life; not only their service but the engineers' mode of thinking by which there must be a determination of exact facts, which is followed by a proper presentation of these facts in their proportional weight before any determination is made of either public or private issue. That should be the basis of governmental action." That is a very attractive ideal and will doubtless be greeted as a contribution to political science, at least in some quarters of our country.

Yet, after spending several hours in the Connecticut Hills analyzing this series of words, I must confess some difficulties with their logical exactness and practical upshot. Mr. Hoover says there must be a determination of exact facts; he does not say the facts or all the facts or even the pertinent facts; he says "exact facts." Yet when I look at any governmental action pertaining to, let us say, the tariff, railway rates, income taxes, banking, foreign relations, it seems impossible to determine the facts in the case; what we always have is a selection of more or less pertinent facts, and if we have a selection, then some fallible human being must select them, and in spite of the best endeavors, he is likely to get his desires mixed up with his realities. Any governmental action cuts into a living organism, not into a warehouse full of facts.

But assuming that something called facts could be assembled to general satisfaction, let us proceed. Mr. Hoover adds that after exact facts are in, there must be a "proper" presentation of those facts. The word "proper" puzzles me. "Proper" to whom or to what? According to the dictionary the word has many meanings ranging from decent, good-looking and handsome,

through respectable to correct and just. If we take the most precise sense of the word, namely, "correct," we find that it has only a relative, not an absolute meaning. So if we substitute "correct presentation" for a proper one, our dilemma is not much improved, for we must ask: Correct according to what and whose measurements?

My difficulties are increased when Mr. Hoover goes on to say that there is to be a proper presentation of these facts in their proportional weight. The word "proportional" has perplexities with reference to the human affairs which enter into politics. The word proportion is defined as "the relation of one thing to another in respect to size, quantity, magnitude of corresponding parts, capacity, or degree." Now I am unable to imagine a political situation of high significance in which all the facts or even the most important of them can be presented in terms of size, quantity, or degree. Shall we have a tariff on raw wool? I should like to see exact facts, the facts, or all the facts pertinent to that question determined, properly presented, and proportionally weighted. If Mr. Hoover can perform that intellectual operation, I shall ascribe to him miraculous powers.

Let us grant the possibility of that operation and continue our inquiry into the upshot. Mr. Hoover says that the engineer's mode of thinking requires the determination of exact facts, their proper presentation, and proportional weighting, "before any determination is made of either public or private issue." He does not say that correct, desirable, and inescapable conclusions will flow from this process; it simply should be carried

out before the issue is determined. If it does not control the result its value may be questioned. Then he concludes that such method should be the basis of governmental action. Basis is a difficult word in politics, though quite appropriate for engineering construction work. I confess, therefore, that I cannot visualize Mr. Hoover's scientific method as a logically water-tight, physio-chemical operation leading to inescapable conclusions, and I am not sure from his phrasing whether he believes that such inescapable conclusions, if they could be evolved, should determine all governmental action or merely serve as useful information.

My uncertainty is further increased by the fact that Mr. Hoover at the same time announced himself as unalterably opposed to state socialism and government ownership of utilities, and in favor of a high tariff and old-fashioned American individualism. He does not say that he has arrived at these conclusions by the engineering methods described above. If not, as is presumably the case, there would be some danger of his introducing incalculable elements into the delicate scientific process on which governmental action should be based. If this is, however, the correct method as to specific governmental actions, can we be sure that the sum total of such actions will be desirable? If desirable, to whom?

Does anyone suppose that a committee of engineers and chemists appointed to collect facts, present them properly, and give them their proportional weight in 1850 could have found a proper, desirable, correct, or whatever-you-want-to-call-it basis for governmental action with respect to the impending slavery crisis?

Matthew Maury was a scientist of high rank from Virginia; Asa Gray was a scientist of high rank from Massachusetts. They saw the issue in about the same light that it was seen by the contending politicians of their respective states. And I suspect that a committee from a national engineering society would have found almost as much difficulty as the Methodists in agreeing upon the right basis for governmental action relative to slavery and would have been about as uncertain with respect to the outcome and upshot as revealed by the events of the next twenty-five years.

Without doubt the scientific method is highly useful in political affairs, but it has decided limitations. Both logic and statistics can be bent to serve many causes. Moreover, there are in politics emotional and intellectual imponderables which will not yield to logical and statistical processes. Statistics may discover what railway rates are necessary to produce earnings of a given size on capital of a determined amount, but they will not tell anybody whether railway rates should be regulated by the government or let alone according to the rules of old-fashioned American individualism.

Indeed, if we apply the methods of exact science to conditions outside of the laboratory, where an ideal environment may be artificially created, we find that great allowances must be made for immeasurable and imponderable factors and forces. Variables of climate and soil, of human conduct affect vitally even engineering calculations. For example, after a careful survey, a great water reservoir is created, a highway and connecting bridges are built around it, and everything is completed on the assumption that the angle of repose

of the surrounding mountains will remain approximately the same; but after the water has stood long in the reservoir and has seeped deeply into the neighboring soil, suddenly the angle of repose is changed and the mountain sides slide into the reservoir, carrying road and bridges. But, you may say, had all the factors been known the problem could have been solved by the scientific method. True. The point is that in the best of engineering calculations for large enterprises the scientific method encounters imponderables, and judgment must be used. Nobody knows how efficient engineering really is. Moreover, some of the greatest scientific discoveries are due to the intelligence of the observer, not to the mere accumulation of data—to brilliant, penetrative, and correct inferences rather than estimates in causality.

IV

Where do we stand now? The conclusions thus far advanced may be quickly summarized in the following formulas. No science of politics is possible; or if possible, desirable. There is no valid distinction between descriptive politics, political science, political theory, or political philosophy. They all represent more or less serious efforts to think about a phase of life called political. The method of natural science is applicable only to a very limited degree and, in its pure form, not at all to any fateful issues of politics. What we have, therefore, and can only have is intelligence applied to the political facets of our unbroken social organism. Debate over the question as to whether that intelli-

gence is a product of heredity or environment alone is nonsense, because it assumes the existence of two separable entities in a world that really admits of no absolute dichotomy anywhere. That intelligence can be stimulated to intensity, width, and depth of effort and can be supplied with ever richer stores of materials for inductive research and deductive and penetrative imagination seems to be true.

Moreover, as the result of intelligence applied to the phenomena of life we have had thrust upon us certain stubborn and irreducible ideas which must serve as utilities in the advancement of political thinking. The first is that every political situation is surrounded by an intellectual climate which takes the form of defensive and critical mechanisms and popular slogans, some of them representing a dying past and others the becoming future. The second is that every complex political situation bears within itself the seeds of transformation and is changing. From this comes a third conclusion; namely, that new facts of the ever developing political situation are constantly challenging old mental patterns and imagery. Hence there is a constant clash of ideas which can only be interpreted, if at all, by the dialectic method. If this contention is sound, then the Socratic elenchus is the prime instrument for training intelligence; and the only tolerable goal of our labors must be an artistically perfect adjustment of our conduct and ideas to the noblest imagined potentialities of the constantly becoming situations, thus uniting the word and the deed which were not asunder in the beginning and will not be at the end.

To bring much verbiage to a point: we are here con-

cerned with intelligence applied to political phases of life. Creative work in political thinking is a matter of degree, not of kind. It is characterized by intensity, depth, width, and richness of imagination, in Ruskin's threefold sense, associative, penetrative, and contemplative.

What, then, are the conditions favorable to creative thinking in politics? Of course there must be some leisure—how much nobody knows. Leisure of itself does not produce thinking and some of the best political thinking, such, for example, as that of Hamilton and Madison, has been done under great stress and strain. Perfect placidity does not necessarily produce thought. Besides some leisure, there must be freedom —how much nobody knows; a license that outruns the laws of becoming reality does not necessarily produce thought; but since creative thought is hazardous and challenging it must break accepted decorum at many points. With leisure and freedom must run some experience with government as a going concern—enough to get a feeling for it without becoming deeply involved in its profits, losses, and ambitions. With this experience should be united a remoteness from immediately practical ends, which must, in the nature of things, eventuate in the center of today, whereas political thinking must look beyond the horizon of tomorrow.

Of primary importance also is the intellectual climate for creative thinking. This involves introducing into our political science atmosphere the most stimulating results of research and speculation in anthropology, psychology, philosophy, economics, ethics, and related subjects. As Buckle finely says, the philosophy of any

subject is not at its center but at its periphery where it impinges upon other sciences; hence we may devoutly pray for the appearance of philosophical specialists in each of these fields, specialists capable of thinking about their subject as well as delving into it. Some profound changes in our system of university training are also necessary to the development of a favorable intellectual climate. The fissiparous tendency of all departments must be checked and emphasis put on centripetal rather than centrifugal disciplines. The special training we now give in political science must be widened far beyond the present boundaries—superficiality is no worse than myopia. The business of training the memory and logical faculties must be supplemented by the business of stimulating the imagination, at least by the constant and severe use of the Socratic elenchus.

Naturally the question now arises whether the university is a place favorable to creative thinking in politics as defined above. Certainly there are some features of university life which run against such a hazardous industry. There are in the university too many charming friends who must not be offended; too many temporal negotiations that call for discreet management; too many lectures to be delivered; too many promotions requiring emphasis on the amenities of life rather than on its thinking processes; too many alumni eager to apply in 1928 what they learned in 1888; too much routine, not enough peace; too much calm, not enough passion; above all too many sacred traditions that must be conserved; too many theories, not enough theory; too many books, not enough strife of experi-

ence; too many students, not enough seekers. Yet with all its handicaps to thought, the university must supply the training for most of our political thinkers and with all its limitations it furnishes the most favorable climate for creative work in America. Perhaps it needs a little laughter, more than it does changes in administration and curriculum. Founded on faith in solemnity, it cannot without difficulty comprehend within its vision all the doings of an animal who is comic as well as serious.

Whatever may be the conditions favorable to creative thinking in politics, and at best they are very elusive, there can be no doubt that we are making some progress in this operation. Fifty years ago our political science was mainly law: the most respectable books were commentaries on the Constitution, having little reference to practice or reality. Since the publication of Bryce's great work in 1888 we have gone behind the machinery of government to the organization and functioning of political parties—a step nearer to the actual process of government. This spirit of realism has penetrated jurisprudence; the austere verbalism of the law is being brought nearer to earth, with decided gains for truth and justice. Events rather than thought, the thrust of inventions, technology, and gigantic economic corporations into the texture of society, have knocked the static logical patterns of Manchester economics into a cocked hat, preparing the way for some constructive excursions in thought. From similar quarters has come the development of administrative science, enriched by corporate experience, reacting fruitfully on speculation and practice. But on the whole our

political thinking has not kept up with our factual evolution; it lags behind the march of affairs; it has been concerned with minutiæ, not great causes and ideas.

Most of the significant questions to be asked of political science are not answered; indeed, have not been raised. Such, for example, as these: Why do political parties arise in modern societies? Can politics affect the distribution of wealth? If so, how? If so, to what ends? Can politics increase the production of wealth, really affect the prosperity of the masses and classes? Under what conditions? To what end? How far is the statesman creative, how far merely a victim of fate? Can politics exercise a determining influence on the occupations and arts of the people? Are political policies to be controlled entirely by the morals of convenience and goods-production or are ethical factors to enter the situation? If the latter, what ethical factors and how? Are such ethical factors to be derived from the observation of reality or from a logically self-sustained system of idealism? Then one might take the ten thousand or more common slogans and stereotypes of politics and ask concerning them: What of your origin, validity, and utility with respect to great ends? The answers to such questions will be wrong or partial at best, but if squarely made, after research illuminated by imagination, they might set in motion currents of opinion that would touch the uttermost boundaries of philosophy and action. What more can we ask of thought?

INDEX

INDEX

Abstract individualism, 191
Abstract and historical sciences, 59
Acton, Lord, 210
Adams, Geo. B., 226
Adams, Henry, 269, 273
Adamson Law, the, 192
Adhesions, concept of, 100
Agassiz, 97
Age, bronze, 94
  iron, 94
  neolithic, 94
  palæolithic, 94
  stone, 94
Age-group analysis, method of, 144
Allport's social facilitation, 161
American Revolution, 210
American school,
  of anthropology, 106
  of history, 213
Analysis,
  age-group, method of, 144
  statistical, rational test of, 134
Analytical methods of forecasting population, 141
Animism, concept of, 100
  defined, 101
Anthropogeography, 103
Anthropological research, objectives in, 110
Anthropology, 35, 83
  American school of, 106
Anthropology,
  and geographers, 103
  archæological methods in, 93
  biological basis of, 89
  concepts of, 88
  drives of, 87
  English school of, 99, 104
  German school of, 103, 104
  objectives in, 84, 85, 110
  research in, 83, 110
Apartments, 19
Apparent migrations, 143
Archæological methods, 93, 95
Area, culture, 106
  natural, of cities, 29
  of transition, 21
  rooming house, 21
Aristotelian logic, 248, 249
Attractions, population-building, 145
Authoritarianism, 182
Automobile, 34
Averages, regularity of, 122

Baldwin, Judge, 198
Bancroft, George, 213
Banking, 75
Barnes, Harry Elmer, 216
Basis, of forecasting, 138
  of historical interpretation, 235
  of philosophy, 261
Baur, 230
Behavior, study of, 277

Behaviorism, 158, 159
Behaviorists, method of, 170
Belief, criticism of, 245
Beliefs, traditional, in philosophy, 244
Bentham, 204
Biological basis of anthropology, 89
Biometric methods, 92
Birth rates, trend of, 143, 144
Births, 142
Blackstone, 184, 185
Blumenbach, 89
Bronze age, 94
Buckle, 288
Bureau of Census, 72
Burgess, E. W., 46
Burke, 188

Capitalism, modern, 62
Cardozo, Judge, 205
Cartesian rules for method, 250
Case-history method in psychology, 164
Catherine the Great, 91
Centrifugal movement of population, 22, 23
Certainty, legal, 198
Census, Bureau of, 72
Census reports, 71
Changing outlook of history, 216
Chartographic studies in history, 234
Cheyney, Edward P., 226, 228
Chicago, 25, 26, 27
China, 16
Cinema, 35
City life, 18
Classificatory system of primitive peoples, 98
Collecting, scientific, 102
Collections, museum, 102
Commodity index, 123
Communities, rural, 12
  urban, 12, 28
Community, the, 3, 7, 8, 9
Company-store legislation, 193
Comparative method in psychology, 164
Comte, 5, 6, 7, 158, 255
Concept, Darwinian, 92
  of adhesions, 100
  of animism, 100
  of survivals, 100
Concepts of anthropology, 88
Concomitants, 165
Concrete individualism, 189, 191
Configurationists, 174
Consensus, 6, 34
Contract, Social, the, 185
Contract-jurisprudence, 183, 195
Contractual view of society, 61
Correlation, 165
Cournot, 59
Creative thinking, in politics, 288, 289, 290
Creed, scientist's, the, 53
Critical inquiry in philosophy, 245
  methodology in history, 230, 231
Criticism of belief, 245
Croce, 272
Cultural processes, 102
Culture area, 106
  material, 102
Curves, growth, 135, 136, 139
  logistic, 139
  Pearl-Reed, 136
Custom, 185

Darwin, 121
Darwin's theory of evolution, 93, 255, 256
Darwinian concept, the, 92
Day, E. E., 140
Death rates, trend of, 143
Deaths, 142
Decline of population, 141
Deductive processes in statistics, 117, 119
Delinquency, juvenile, 45
Demography, 72
Density of population, 9
Dependent variable, 161
Descartes, 250
Description, levels of, 153
Descriptive system of primitive peoples, 98
Desertion, 31
Development of industries, 139
Dicey, 182
Diffusion, 103, 106
Distribution, 105
Division of labor, 5
Divorces, 30
Drives of anthropology, 87
Durkheim, 10

Ebbinghaus, 279
Economic history,
  monographs on, 74
  problems, and research, 63
  processes, 55
  realism, 194
  research, 63, 77
Economics, 53
  a quantitative science, 116, 117
  measurements in, 120
Economy, political, 56
Edwards, Jonathan, 90
Eggleston, Edward, 216
Empathy, 169
Empirical philosophy, 263
Empiricism, 262
Employment statistics, 124
Endowment for research, 78
Engels, 219
English school of anthropology, 99, 104
Environment, 44
  and heredity, 280
  and intelligence, 280
Errors,
  in indirect measurements, 129
  philosophic, source of, 263
Ethnology, 35
Evaluation of the prospects of society, 138
Evolution, 93, 255, 256
Evolutionary hypothesis, 92
  sciences, 60
Exemption laws, 191
Existential psychology, 173
Experience, mortality, 116
Experimental methods in psychology, 161
Experimentation in psychology, 167

Facilitation, social, 161
Facts, 282
  in history, 232
Fallacies, philosophic, 263
Families, linguistic, discovery of, 90, 91
Family interview, 46
Fire-making, 102
Fluctuations, industrial, 70
Folk psychology, method of, 167
Forecasting, basis of, 138
  methods of, 140, 141

Forms of political science, 273
of society in primitive peoples, 98
Formulating hypotheses, 65
questions, 65
Fox, D. R., 234
Frames of reference, 28, 31
Free will, 186
Freud, 163
Future trends of population, 143

Galton, Francis, 92
Gangland, 45
Gangs, 45
Genetic method in psychology, 162
Geographers and anthropology, 103
German school of anthropology, 103, 104
Gestalt psychology, 174
Graebner, 103
Great Man theory of history, 219
Group research, 64, 127
test, 157
Growth curves, 135, 136, 139
of population, 139, 141

Haldane, Lord, 205
Haskins, 219
Health, 130
work, measurements in, 130, 133
Hegel, 186
Hellenistic philosophy, 247
Henry, 97
Heredity and environment, 280
and intelligence, 280
Historical interpretation, basis of, 235
Historical interpretation, jurisprudence, 186
laws, 60
method in psychology, 163
monographs, 215
sciences, 59
sociologist, 222
studies, 73
Histories, life, 38, 41, 47
History, 33, 209
a method of inquiry, 221
American school of, 213
and psychology, 235, 236
and science, 3, 59
and sociology, 229
as literature, 213
as science, 229
changing outlook of, 216
chartographic studies in, 234
critical methodology in, 230, 231
economic, monographs on, 74
facts in, 232
Great Man theory of, 219
interpretation of, 218
incompleteness of, 210
modern school of, 216, 218, 221
of logic, 248, 250, 252
of philosophy, 242, 247
province of, 226, 227
relation of to other sciences, 220
research in, 214, 215, 232
seamless web of, 61
scientific school of, 213
scope of, 222
specialization in, 222, 226
statistical method in, 233
understanding of, 218
uses of, 211
Hobohemia, 31

Hobson, 31
Homestead and exemption laws, 191
Hoover, 281, 282, 283, 284
Humboldt, von, Alexander, 103
  William, 91
Hygiene, school, 131
Hypotheses, 118, 259
  formulating, 65
Hypothesis, evolutionary, 92

Independent variable, 161
Index, commodity, 123
  of prices, 123, 124
  Snyder's, 124
Indian languages, 91
Indians, Ojibway, 96
Indirect measurements, errors in, 129
Individual and society, 39
Individualism, 189, 196
  abstract, 191
  concrete, 189, 191
  orthodox, 189
  social, 189
Induction, statistical, 119
Inductive and deductive processes in statistics, 117, 119
Industrial fluctuations, 70
Industries, development of, 139
  migration of, 23
Infant, possibilities in, 277
Institutes of legal research, 205
Intellect, 276
Intelligence, 286, 287
  and environment, 280
  and heredity, 280
  and political science, 275, 276, 281
  defined, 279
  tests, 277, 279
Interpretation, historical, basis of, 235
Interrelation of sciences, 154
Interview, family, 46
Introspection, 157
Introspective-experimental school of psychology, 173
Investigation, *see also* Research
  psychological,
    strategy of, 160, 166
    tactics of, 156
Iroquois, the, 96
Iron age, 94

Jefferson, Thomas, 90, 188
Johnson, C. S., 44
Jurisprudence, 181
  contract-, 183, 195
  historical, 186
  research in, 187, 200, 204
  will-, 186, 195
Juvenile delinquency, 45

Kelvin, Lord, 128
Kent, 185
Keynes, J. M., 138

Labor, division of, 5
  legislation, 193
  statistics, 124
Land values, 20, 21, 22, 24
  maps, 24, 25, 26, 27
  mobility and, 17
Lane-Fox, A. H., 102
Languages, Indian, 91
Law, Adamson, the, 192
  exemption, 191
  historical, 60
  homestead, 191
  in science, 254
  of three stages, 255

Legal certainty, 198
research, 187, 200, 204
Institutes of, 205
Legislation, company-store, 193
labor, 193
social, 193
Levels of description, 153
Liberal school of philosophy, 259
Life histories, 38, 41, 47
Lines of secular trends, 136, 137
Linguistic families, discovery of, 90, 91
Linnæus, 88, 89
Literature, history as, 213
Locke, 259
Logic, Aristotelian, 248, 249
history of, 248, 250, 252
Mill's, 252
relation of to social studies, 252, 254
Logical theory in philosophy, 248
Logistic curve, 139
Lubbock, Sir John, 94

Maine, Sir Henry, 187
Maitland, 183
Malinowski, 100
Malthus, 10
Mandate theory, 183
Mansfield, Lord, 197
Maps, land value, 24, 25, 26, 27
Marshall, 62
Marx, Karl, 219
Mason, O. T., 102
Material culture, 102
Mathematics, 3
McKenzie, 19
Measurements, in economics, 120
in health work, 130, 133
in social sciences, 128
indirect, 129
Mechanistic view of society, 61
Metabolism, social, 11, 12
Methods,
analytic, of forecasting population, 141
archæological, 93, 95
behavioristic, 170
biometric, 92
Cartesian rules for, 250
case-history, 164
comparative, 164
experimental, 161
forecasting, 140, 141
genetic, 162
historical, 163
in psychology, 156, 167
research, 3, 83
scientific, 3, 55
statistical, 138, 233
stratigraphic, 93, 94, 96
Methodology, critical, in history, 230, 231
Migrations, 142
apparent, 143
industry, 23
trade, 23
trends of, 145
Mill, John Stuart, 58, 252
Mill's logic, 252
Mills, F. C., 120
Mitchell, W. C., 134, 136, 137
Mobility, 19, 20
and land values, 17
and position, 20
Modern capitalism, 62
school of history, 216, 218, 221
Monographs, historical, 215
on economic history, 74
Morals, 241
Morgan, 107, 108, 255
Morgan, Lewis H., 96, 97, 98, 99, 100

Mortality experiences, 116
  rates, 130
Motley, 213
Movement, centrifugal, of population, 22, 23
Murray, Gilbert, 247
Museum collections, 102

Natural areas of cities, 29
  phenomena, 3
Nature, 260
  uniformity of, 122
Negro, the, 44, 48
Neo-Hegelians, 194
Neo-Kantians, 194
Neolithic age, 94
Neo-Scholastics, 194
Neuroses, 167
Newspapers, 35, 37
Niebuhr, 230
Numbers, stability of large, 122
Nutrition, 132

Objective observation, 157, 160
Objectivity, 108, 109
Observation, objective, 157, 160
  subjective, 157, 158
Ojibway Indians, the, 96
Organism, social, 5
Orientation, social, 53, 57
Ornament, 102
Orthodox individualism, 189

Palæolithic age, 94
Parallelism, 152
Parkman, 213
Pearl and Reed, 139
  curve, 136
Personality, 40
Ph. Disease, the, 224
Phenomena, natural, 3
Philosophic errors, 263
  fallacies, 263
  thought, history of, 242, 247
Philosophy, 241
  basis of, 261
  business of, 244
  critical inquiry in, 245
  empirical, 262, 263
  Hellenistic, 247
  history of, 242, 247
  liberal school of, 259
  logical theory in, 248
  nature of, 261
  political, 241
  problems for research in, 258
  rationalistic, 262, 263
  scholastic, 247
  social, 241
  traditional beliefs in, 244
Physical and social sciences, 53
Physiology and psychology, 151
Pickering, 91
Pitt-Rivers, 102
Poles, the, 42
Political economy, 56
Political philosophy, 241
Political science, 56
  see also Politics
  forms of, 273
  intelligence and, 275, 276, 281
  prognostication in, 274
  questions of, 291
Politics, *see also* Political science
  creative thinking in, 288, 289, 290
  science of, 269, 271, 286
  scientific methods in, 285
  university in, 289
  works on, 270

Population,
analytic methods of forecasting, 141
-building attractions, 145
centrifugal movement of, 22, 23
decline of, 141
density of, 9
forecasting, 141
future trends of, 143
growth of, 139, 141
pyramids, 9, 10, 13, 14
Position and mobility, 20
Possibilities in infant, 277
Prediction, *see* Forecasting
Prescott, 139, 213
Price, M. T., 43
Price indexes, 124
Prichard, 89
Primitive Culture (Tylor's), 100
Primitive peoples,
classificatory system of, 98
descriptive system of, 98
forms of society in, 98
Probability, theory of, in statistics, 115
Problems, economic, and research, 63
Processes, cultural, 102
economic, 55
Prognostication in political sciences, 274
Pseudo-objectivity, 109
Psychoanalysts, 172, 174
Psychological investigation,
strategy of, 160, 166
tactics of, 156
tests, 166
Psychology, 151
and history, 235, 236
and physiology, 151
and sociology, 151
Psychology,
beginning of as a science, 155
case-history method in, 164
comparative method in, 164
existential, 173
experimental method in, 161
experimentation in, 167
folk, method of, 167
genetic method in, 162
gestalt, 174
historical method of, 163
introspective-experimental school of, 173
method in, 156, 167
social, 165
statecraft of, 170
Pyramids, population, 9, 10, 13, 14

Questions, formulating, 65

Ranke, 230, 272
Rates, birth, 143, 144
death, 143
mortality, 130
Rational test of statistical analysis, 134
Rationalism, 262, 263
Rationalistic philosophy, 262, 263
Rationalization, 135
Ratzel, 103
Realism, economic, 194
Reed, and Pearl, 139
Reference, frames of, 28, 31
Regularity of averages, 122
Rent, 24
Report, verbal, 158, 170
Research, 79, 80
see also Investigation
anthropological, 110
and economic problems, 63, 77
economic, 63, 77

Research,
endowment for, 78
group, 64, 127
in anthropology, 83, 110
in history, 214, 215, 232
in jurisprudence, 187, 200, 204
in philosophy, 258
legal, 187, 200, 204, 205
methods of, 3
neglected types of, 69, 71
problems for, 69
routine, 79
statistical, 68
successful, 67
Revolution, American, 210
Ritter, Karl, 103
Robinson, James Harvey, 216
Rooming house area, 21
Roosevelt, Theodore, 225
Rural and urban communities, 12

Sampling, 122, 125, 126
Scholastic philosophy, 247
Scholasticism, 247, 248
School hygiene, 131
Schools
of anthropology, 99, 103, 104, 106
of history, 213, 216, 218, 221
Science, and history, 3, 59
history as a, 229
laws in, 254
political, 56, 269, 171, 286
of politics, 56, 269, 271, 286
psychology, beginning of as a, 155
social, 56
Sciences,
abstract and historical, 59
evolutionary, 60
interrelation of, 154
Sciences,
relation of history to, 220
social, and physical, 53
Scientific collecting, 102
Scientific methods, 3, 55
in politics, 285
of research, 3
Scientific school of history, 213
Scientific synthesis, 57
Scientist, social, 54
Scientist's creed, 53
Secular trends, lines of, 136, 137
Self-observation, 157
Sense-data, 262
Shaw, C. R., 45
Slums, 21
Smith, Adam, 75
Snyder's index, 124
Social change, 16
Contract, the, 185
facilitation, Allport's, 161
individualism, 189
legislation, 193
metabolism, 11, 12
objects, 38
organism, 5
orientation, 53, 57
philosophy, 241
psychology, 165
science, 56
sciences,
and physical sciences, 53
and statistics, 4
measurements in, 128
scientist, 54
statistics, 30
studies, relation of logic to, 252, 254
Societies, 5
Society, 5, 7, 8

Society,
and individual, 39
contractual view of, 61
evaluation of the prospects of, 138
forms of, in primitive peoples, 98
mechanistic view of, 61
Sociologist, 42
historical, 222
Sociology, 3, 5, 36, 37, 42
and history, 229
and psychology, 151
Sorokin, 17
Sparks, Jared, 212
Spearman, 276
Specialization in history, 222, 226
Spencer, Herbert, 5, 7, 255
Stability of large numbers, 122
Stages, three, laws of the, 255
Statecraft of psychology, 170
Statistical analysis,
rational test of, 134
induction, 119
methods, 138, 233
research, 68
Statistics, 4, 115
common, utility of, 71
employment, 124
labor, 124
inductive and deductive processes in, 117, 119
probability, theory of, in, 115
problems involved in, 115, 116
social, 30
social sciences and, 4
utility of, 71
Status, 34
change in, 17
Stone age, 94
Story, 185, 201
Strategy, 156
of psychological investigation, 160, 166
Stratigraphic method, 93, 94, 96
Studies, historical, 73
Subjective observation, 157, 158
Suburbs, 20
Suicide, 31
Survivals, concept of, 100
Synthesis, scientific, 57
Systems of primitive people, 98

Tactics, 156
of psychological investigation, 156
Taney, Chief Justice, 191
Tests, group, 157
intelligence, 277, 279
psychological, 166
Theory, diffusion, 103, 106
mandate, 183
Thomas and Znaniecki, 42, 47
Thomsen, 94
Thought, philosophic, history of, 242, 247
Thrasher, F. M., 45
Titchener, 173
Trade migration, 23
Traditional beliefs in philosophy, 244
Transition, area of, 21
Trevelyan, Sir George H., 225
Turner, F. J., 233
Tylor, 99, 100, 101, 107
Tylor's Primitive Culture, 100

Uniformity of nature, 122
University, the, and creative thinking in politics, 289

University, the,
founded by Jefferson, 206
Urban communities, 28
compared with rural communities, 12

Values, land, 20, 21, 22, 24
Variable, dependent, 161
independent, 161
Veblen, 60
Verbal report, 158, 170
Verification, 66
Virginia,
and economic research, 77
University of, 77, 206

Waitz, 15
Washington, President, 212
Watson, 158, 277
Weems, "Parson," 213
Wenschow process, the, 25
Westbury, Lord, 205
Will-jurisprudence, 186, 195
Wilson, James, 185
Wolf, A. F., 230
Woodbury, R. M., 134
Wundt, 158, 168, 173

Young, Allyn A., 127

Zionism, 49
Znaniecki and Thomas, 42, 47

Date Due			
OC 25 '51			
NO 8 '51			
NO 23 '51			

H61 .G29
Research in the social sciences: its
Princeton Theological Seminary–Speer Library
1 1012 00025 0359